Dealing with Difficult Days: Can Experiential Avoidance and Functional Dimensions of Coping Explain Change in Self-harm Thoughts and Behaviour?

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Abstract

Self-harm affords people a means of coping, at least in the short term. The reasons most consistently given for self-harm pertain to the reduction of intense aversive emotions; relief from a terrible state of mind. A contemporary theoretical account of non-suicidal self-injury, the Experiential Avoidance Model (EAM: Chapman et al., 2006), proposes that experiential avoidance – the tendency for non-acceptance or avoidance (e.g., escape; suppression; modification; control) of negative affective, but not overtly dangerous, states – may be a central psychological factor in the development of, and cyclical re-engagement in, self-injurious behaviours. While the EAM framework is specified for non-suicidal behaviours, notions of avoidance and escape motives, related to psychological distress, are also established in models of suicidal behaviours.

To date, no research has explored experiential avoidance and transactional, self-defined, functional coping dynamics in relation to distinguishing self-harm thoughts (ideation) and behaviours (enactment). This thesis is concerned with *change* in self-harm thoughts and behaviour. Here, the work focused primarily on understanding change *in those with histories of self-harm* and theoretically-derived, psychological factors which may: (i) determine self-harm experience (no self-harm; ideation only; enactment) in response to a given situation, and (ii) predict the repetition of self-harm over time (e.g., frequency). Change is also considered by examining whether factors which are predicted to differentiate those who have ever self-harmed from those with no history of self-harm behaviour also: (i) predict the recency and frequency of self-harm, and (ii) differentiate groups with differing intent histories (no self-

injury; non-suicidal self-injury only; non-suicidal self-injury plus suicidal behaviour). Finally, the research presented considered change by exploring young people's views of an intervention (harm minimisation – sensation and process proxies) designed to prevent the transition from self-harm thought(s) to self-harm behaviour(s).

While understanding transitions between thought(s) and action(s) is highlighted as a research priority, the extant literature typically aggregates experience, grouping people on lifetime experience. It is important to note that transitions between ideation and enactment are not uni-directional. Indeed, understanding what psychological factors are related to self-harm experience *in those with history of self-harm* is important for understanding 'recovery' and consequently intervention planning.

Research presented in this thesis aims to investigate:

1) Whether experiential avoidance and functional coping dynamics can: (i) differentiate those with and without a lifetime history of self-harm, and (ii) predict the recency and frequency of self-harm (Chapter 2).

2) The relative importance of experiential avoidance and functional coping dynamics in self-harm of differing suicidal intent (Chapter 4).

3) Whether exploring functional coping dynamics can help us to understand *when* someone might: (i) think about harming, and (ii) self-harm (Chapter 3; Chapter 5).

4) Whether harm minimisation (sensation and process proxies) is viewed by young people with a history of self-harm, as being effective in stopping the

transition from thinking about self-harming to acting upon those thoughts (Chapter 6).

Chapter 1 provides a general introduction to the thesis. In Chapter 1, The Experiential Avoidance Model (Chapman et al., 2006) is presented, with evidence in support of the model outlined. A brief overview of the history of 'coping' as a construct is provided, with detailed delineation of styles and process accounts. Within this, the position of functional coping dynamics is explicated and the key conceptual differences between experiential avoidance and functional coping dynamics outlined. The position, structure and rationale of the thesis is outlined, and key research questions defined. Consideration is also given to the scale of the problem of self-harm, nomenclature, ethics, and the differing conceptualisations of suicidal intent.

Study 1 (Chapter 2) investigated the relationship between experiential avoidance, coping and the recency and frequency of self-harm. Participants (N = 1,332; aged 16-69 years; community sample) completed online, self-report measures assessing self-harm, momentary affect, experiential avoidance and coping in response to a recent stressor. Participants who had self-harmed reported significantly higher levels of experiential avoidance and avoidance coping, as well as lower levels of approach, reappraisal and emotional regulation coping, than those with no self-harm history. Moreover, more recent self-harm was associated with lower endorsement of approach, reappraisal and emotion regulation coping, and also higher levels of both avoidance coping and experiential avoidance. Higher experiential avoidance and avoidance coping also predicted increased lifetime frequency of self-harm. Conversely, increased approach and reappraisal coping were associated with a decreased likelihood of

high frequency self-harm. Although some of the effects were small, particularly in relation to lifetime frequency of self-harm, overall results suggest that experiential avoidance tendency may be an important psychological factor underpinning self-harm, regardless of suicidal intent (e.g., including mixed intent; suicidal intent; ambivalence), which is not accounted for in existing models of self-harm.

Study 2 (Chapter 3) explored whether and how functional coping dynamics differ between stressful situations in which people self-harm (enactment), think about harming (ideation), or experience no self-harmful thoughts or behaviours. Participants (N = 1,157; aged 16−49 years; community sample) with a recent history of self-harm (past 3 months) reported how they coped in response to their most significant recent stressor (past 3months). Almost 40% of participants, all of whom had self-harmed in the last 3 months, had no self-harm experience (thoughts or behaviours) in response to their most significant stressor in that timeframe. In multivariate analysis, adjusting for symptoms of depression and anxiety, reappraisal coping was predictive of self-harm thoughts. Approach, emotion regulation and reappraisal coping were predictive of self-harm behaviour. Emotion regulation coping differentiated self-harm ideation and enactment groups. Taken together, the findings suggest that functional coping dynamics may be differentially associated with self-harm ideation and enactment. Further, results indicate that seemingly innocuous events may have a profound impact as tipping points for enaction. This has implications for clinical practice, including the co-production of safety plans.

Although emotional avoidance may be a critical factor in the pathway from psychological distress to self-injury and/or suicidality, little is known about the relative importance of differing functional coping dynamics and experiential avoidance between people with self-injury histories of differing intent (e.g., non-suicidal self-injury only vs. non-suicidal self-injury plus suicidal behaviour; NSSI vs. NSSI + SB).

Study 3 (Chapter 4) explored self-reported experiential avoidance and functional coping dynamics in individuals (N = 313; aged 16–49 years; community-based) with: (i) no self-injury history (controls), (ii) a history of NSSI only, and (iii) a history of NSSI + SB. Jonckheere-Terpstra trend tests indicated that avoidance coping was higher in the NSSI and NSSI + SB groups than in controls. Emotion regulation was higher in controls than those with a history of self-injury (NSSI and NSSI + SB). Approach and reappraisal coping demonstrated significant ordered effects such that control participants were higher in these coping dynamics than those with a history of NSSI only, who, in turn, were higher than those with a history of NSSI + SB (Control > NSSI > NSSI + SB). Endorsement of the reappraisal/denial facet of experiential avoidance was most pronounced in those with a history of NSSI + SB (Control < NSSI < NSSI + SB). No significant ordered effects were observed for other dimensions of experiential avoidance.

Study 4 (Chapter 5) explored whether coping moderates the relationship between stress and self-harm experience, using micro-longitudinal, daily diary methodology embedded within a longitudinal protocol (N = 57; aged 18-25 years; community-based). Data were analysed via multilevel models. Participants were more likely to report higher intensity thoughts of,

and urges to, self-harm in higher stress situations and when reappraisal coping was lower (for that individual). Approach and emotion regulation coping functions moderated the positive relationship between stress and self-harm thought and urge intensity. Here, at low levels of coping, the relationship between stress and self-harm thoughts was strengthened. However, the relationship was attenuated at high levels of coping. There was some evidence that participants were more likely to self-harm in high stress situations. Approach, emotion regulation and reappraisal coping moderated the relationship between stress and self-harm such that at low coping the relationship between stress and self-harm was positive, but the direction of these relationships was inversed (approach) or attenuated (emotional regulation; reappraisal) at high levels of coping. Avoidance coping did not predict self-harm thoughts or behaviour.

Although UK clinical guidelines make tentative recommendations for 'harm minimisation' strategies for repeated self-harm, this is in the absence of empirical evidence supporting their acceptability or effectiveness. Study 5 (Chapter 6) explored young people's views of harm minimisation strategies (e.g., snapping elastic bands on skin; drawing on skin with red ink), as a proxy (sensation; process) for self-harm. This mixed methods study examined data (secondary analysis) from: (i) an online questionnaire (N = 758; aged 16-25 years, community-based) observing the frequency of these strategies being used as a form of self-harm, and as a form of alternative coping (viewed as distinct from self-harming), and (ii) semi-structured interviews (N = 45; aged 11-21 years, recruited from Child and Adolescent Mental Health Services [CAMHS], Children's Social Care Services and in the community), using

thematic analysis to identify themes related to harm minimisation. Predominant themes suggest that many young people viewed harm minimisation strategies as a proxy for self-harm as ineffective. Where such strategies were reported as helpful, their utility was seen to be short-lived or situation specific. Findings from both studies in this chapter indicate that some young people described using harm minimisation (e.g., elastic band snapping) as a form of self-harm (e.g., to break the skin). Harm minimisation strategies should not be recommended in isolation and their use must be monitored. Further research is urgently needed to develop an evidence base that informs practice.

Chapter 7 provides a synthesis of results across the five studies presented within this thesis and considers these findings within the context of existing empirical evidence. Strengths, limitations and considerations for interpretation of the findings are outlined, as well as theoretical and clinical implications. Four key directions for future research are outlined: (i) replication, (ii) extension to more diverse samples, (iii) extending the exploration of change, and (iv) further exploration of 'harm minimisation'. Here it is critical to note that any future research should be conducted with the input and involvement of those with lived experience (including those who care for them).

Keywords: self-harm; non-suicidal self-injury; suicide; coping; experiential avoidance.

Author contribution

The idea for this thesis was the author's own.

In Studies 1 (Chapter 2), 2 (Chapter 3), and 3 (Chapter 4), the author, Emma Nielsen (EN), proposed and devised the study protocol, obtained ethical approval (School of Psychology Ethics Committee, University of Nottingham; Ref: 335R, 446, 262R) and was responsible for data collection and analysis.

In Study 4 (Chapter 5) the author proposed and devised the study protocol, obtained ethical approval (School of Psychology Ethics Committee, University of Nottingham; Ref: 288, 367) and was responsible for data collection. Data analysis was conducted by the author, although guidance was provided by Dr Evan Kleiman (EK: Harvard University; Rutgers University) during the author's visiting fellowship to Nock Lab at Harvard. Dr Kleiman is a co-author on this project.

Study 5 (Chapter 6) is a collaborative, mixed methods study using secondary data analysis. The author, EN, co-developed the study idea with Dr Ruth Wadman (RW). The quantitative data were collected by EN for the purposes of this thesis. The qualitative data were collected by the 'Listen-up!' project: understanding and helping looked-after young people who self-harm, led by Professor Ellen Townsend (ET). Quantitative data analysis was conducted by the author. Qualitative data analysis was conducting by EN, RW, Katherine Brown (KB), A. Jess Williams (AJW) and Dr Linda O'Raw (LOR). Dr Ruth Wadman, Katherine Brown, A. Jess Williams, and Dr Linda O'Raw are co-authors on this project.

Presentations arising from this work

i. Chapter 2

Research from Chapter 2 has been presented at:

Nielsen, E., Sayal, K. & Townsend, E. (2016). Experiential avoidance and functional coping dynamics predict the recency and frequency of self-harm. *The Institute of Health and Wellbeing annual conference*, University of Glasgow. 6th June 2016 - oral presentation.

Nielsen, E., Sayal, K. & Townsend, E. (2016). Does suicidal intent effect the relationship between experiential avoidance, coping function and self-harm? *The Institute of Mental Health Annual Research Day,* The Institute of Mental Health, University of Nottingham. 10th May 2016 - oral presentation.

Nielsen, E., Sayal, K. & Townsend, E. (2015). Can understanding coping help us to understand self-harm? *4th Annual Nottingham-Birmingham-Warwick Doctoral Training Centre (DTC) Student Conference*, University of Nottingham. 28th October 2015 - oral presentation.

Nielsen, E., Sayal, K. & Townsend, E. (2015). Exploring the relationship between coping, experiential avoidance and the recency and frequency of self-harm. *International Academy of Suicide Research/ American Foundation for Suicide Prevention (IASR/AFSP) International Summit of Suicide Research*, in New York, USA. 11th -14th October 2015 - poster presentation.

ii. Chapter 3

Research from Chapter 3 has been presented at:

Nielsen, E., Sayal, K. & Townsend, E. (2017). Dealing with difficult days: Understanding coping and self-harm. *International Suicidality in Autism Summit*, in Newcastle, UK. 25th – 26th May 2017 – poster presentation.

Nielsen, E., Sayal, K. & Townsend, E. (2016). Functional coping dynamics differentiate ideation and enactment, in recent self-harm. *The 16th European Symposium on Suicide and Suicidal Behaviour*, in Oviedo, Spain. 8th - 10th September 2016 - oral presentation.

Nielsen, E., Sayal, K. & Townsend, E. (2016). Dealing with difficult days: The role of functional coping dynamics in self-harm ideation and enactment. *Early Career Researchers'(ECR) Forum*, University of Glasgow. 3rd June 2016 - oral presentation.

Nielsen, E., Sayal, K. & Townsend, E. (2016). Functional coping dynamics in self-harm ideation and enactment. *The Institute of Mental Health Annual Research Day*, The Institute of Mental Health, University of Nottingham. 10th May 2016 - oral presentation.

iii. Chapter 5

Research from Chapter 5 has been presented at:

Nielsen, E., Kleiman, E. M., Sayal, K. & Townsend, E. (2017). Understanding functional coping dynamics in self-harm thoughts and behaviours: A longitudinal, repeated daily diary approach. *Early Career Researchers' (ECR) Forum,* University of Glasgow. 8th - 9th June 2017 - oral presentation.

Our paper, 'Understanding the '*whens*' of self-harm thoughts and behaviours: A longitudinal, repeated daily diary design', was accepted for oral presentation at IASR 2017. Unfortunately, due to ill-health, I was unable to travel to present. Our abstract is included within the conference proceedings, as listed below.

Nielsen, E., Kleiman, E. M., Sayal, K. & Townsend, E. (2017). Understanding the '*whens*' of self-harm thoughts and behaviours: A longitudinal, repeated daily diary design. *International Academy of Suicide Research/ American Foundation for Suicide Prevention (IASR/AFSP) International Summit of Suicide Research*, in Nevada, USA. 5th - 8th November 2017 - oral presentation.

iv. Chapter 6

Research from Chapter 6 has been presented at:

Nielsen, E. (2019). 'These things don't work'. Rethinking harm minimisation for self-harm in young people and use in clinical practice to prevent repetition. *30th World Congress of the International Association for Suicide Prevention (IASP) "Breaking Down Walls & Building Bridges",* in Derry-Londonderry, Northern Ireland. 17th- 21st September 2019 – ECR keynote presentation.

Nielsen, E., Wadman, R., O'Raw, L., Williams, A. J⁜[1]., Brown, K⁜., Sayal, K. & Townsend, E. (2019). 'These things don't work'. Rethinking harm minimisation for self-harm in young people and use in clinical practice to prevent repetition. *30th World Congress of the International Association for Suicide Prevention (IASP) "Breaking Down Walls & Building Bridges",* in Derry-Londonderry, Northern Ireland. 17th – 21st September 2019 – oral presentation.

Nielsen, E. (2019). "These things don't work": Understanding what isn't helpful as a vital aspect of treatment guidance for self-harm. *'Reaching out': Exploring Interdisciplinary Approaches to Self-Harm and Suicide Prevention in Young People*, University of Birmingham. 13th September 2019 – invited oral presentation and panel discussant.

[1] ⁜ Indicates a student who worked under the author's supervisor as a graduate or undergraduate Research Intern.

Nielsen, E., Wadman, R., O'Raw, L., Brown, K⁂., Williams, A. J⁂. Sayal, K. & Townsend, E. (2019). Young People's Views on Harm Minimisation Strategies as a Proxy for Self-Harm: A Mixed Methods Approach. *Institute of Mental Health (IMH) Annual Research Day*, University of Nottingham. 21st May 2019 – oral presentation.

v. Additional presentations

In addition to the presentations outlined above, research conducted during this PhD studentship has been presented at the following conferences, public engagement events and invited presentations. Some of these talks pertain to work which was conducted during my PhD but is not presented within this thesis (these are indicated ◊). Others provided an overview of the learning to date. ⸸ indicates a researcher under my supervision. Where a co-author has presented the work, this is indicated with underlining.

Nielsen, E. (2019). Everybody's business: Understanding, prevention and intervention for self-harm. *3rd Joint Staff Wellbeing Conference: Thriving in Higher Education*, University of Nottingham and University of Birmingham. 3rd July 2019 – oral presentation.

Nielsen, E., Padmanathan, P. & Knipe, D. (2017). Commit* to change? A call to end the use of the phrase 'commit* suicide'. *XXIX World Congress of the International Association for Suicide Prevention (IASP)* in Sarawak, Malaysia. 18th - 22nd July 2017 - poster presentation.◊

Williams, A. J⸸., **Nielsen, E.** & Coulson, N. S. (2017). "They aren't all like that": Perceptions of clinical services, as told by self-harm e-communities. *Early Career Researchers'(ECR) Forum*, University of Glasgow. 8th -9th June 2017 - oral presentation.◊

Williams, A. J[⸸]., Wadman, R., Brown, K[⸸]. & **Nielsen, E.** (2017). Early career researchers' experience of youth and public involvement in self-harm, suicide and mental health research. *Early Career Researchers'(ECR) Forum*, University of Glasgow. 8th - 9th June 2017 - poster presentation.[◊]

Nielsen, E., Padmanathan, P. & Knipe, D. (2017). Commit* to change? A call to end the use of the phrase 'commit* suicide'. *Early Career Researchers'(ECR) Forum*, University of Glasgow. 8th - 9th June 2017 - poster presentation.[◊]

Nielsen, E., Sayal, K. & Townsend, E. (2016). Dealing with difficult days: Understanding coping and self-harm. *Research Showcase*, University of Nottingham - 15th June 2016 – poster presentation.

Nielsen, E. (2016). Experiential avoidance and functional coping dynamics in self-harmful behaviours: Current evidence and future research directions. *Nock Lab at Harvard*, 31st October 2016 - invited oral presentation.

Nielsen, E. (2016). Can suicide be prevented? *ESRC DTC Pecha Kucha Research Showcase*, University of Nottingham, 11th May 2016 - oral presentation.

Nielsen, E., Sayal, K. & Townsend, E. (2015). Predicting non-suicidal self-injury across 12 months: The utility of assessing (experiential) avoidance. *International Academy of Suicide Research/ American Foundation for Suicide Prevention (IASR/AFSP) International Summit of Suicide Research,* in New York, USA. 11th -14th October 2015 - oral presentation.◊

Nielsen, E., Sayal, K. & Townsend, E. (2015). Predicting non-suicidal self-injury at 12 months - A place for psychometric and behavioural assessment of (experiential) avoidance? *XXVIII World Congress of the International Association for Suicide Prevention (IASP)* in Montreal, Canada. 16th - 20th June - oral presentation.◊

Nielsen, E., Sayal, K. & Townsend, E. (2015). Can experiential avoidance and coping dynamics predict future self-injury? *The Institute of Mental Health Annual Research Day,* University of Nottingham. 12th May 2015 - oral presentation.

Nielsen, E., Sayal, K. & Townsend, E. (2015). Predicting non-suicidal self-injury at 12 months. *School of Psychology Postgraduate Conference*, University of Nottingham. 17th April 2015 - oral presentation.◊

Nielsen, E. (2015). Self-harm: Research findings and clinical implications. *Trent Assistant Psychologists Group* (TAG), 25th March 2015 – invited oral presentation.

Hochard, K. D., **Nielsen, E.,** Heym, N. & Townsend, E. (2013). Exploring avoidant behaviour in self-harm using a novel behavioural task. *XXVII World Congress of the International Association for Suicide Prevention (IASP)* in Oslo, Norway. 24th - 28th September 2013 - Joint oral presentation.◊

Nielsen, E., Sayal, K. & Townsend, E. (2013). Functional Dimensions of coping and change in self-harm behaviour. *ESRC DTC 'Pecha Kucha' Research Showcase*, University of Nottingham. 4th December 2013 - oral presentation.

Nielsen, E. & Townsend, E. (2013). Coping function and self-harm. *Second Midlands ESRC DTC conference for doctoral researchers,* University of Warwick. 27th June 2013 - oral presentation.

Our paper, 'Commit* to change? A call to end the use of the phrase 'commit* suicide'' was accepted for poster presentation at IASR 2017. Unfortunately, due to ill-health, I was unable to travel to present. Our abstract is included within the conference proceedings, as listed below.

Nielsen, E., Padmanathan, P. & Knipe, D. (2017). Commit* to change? A call to end the use of the phrase 'commit* suicide'. *International Academy of Suicide Research/ American Foundation for Suicide Prevention (IASR/AFSP) International Summit of Suicide Research*, in Nevada, USA. 5th - 8th November 2017 - poster presentation.◊

Peer-review publications arising from this work

i. Chapter 2

The research presented in Chapter 2 is published in:

Nielsen, E., Sayal, K. & Townsend, E. (2016). Exploring the relationship between experiential avoidance, coping functions and the recency and frequency of self-harm. *PLoS ONE, 11*(7), e0159854. https://doi.org/10.1371/journal.pone.0159854

ii. Chapter 3

The research presented in Chapter 3 is published in:

Nielsen, E., Sayal, K. & Townsend, E. (2017). Dealing with difficult days: Functional coping dynamics in self-harm ideation and enactment. *Journal of Affective Disorders, 208*, 330-337. https://doi.org/10.1016/j.jad.2016.08.036

iii. Chapter 4

The research presented in Chapter 4 is published in:

Nielsen, E., Sayal, K. & Townsend, E. (2017). Functional coping dynamics and experiential avoidance in a community sample with no self-injury vs. non-suicidal self-injury only vs. those with both non-suicidal self-injury and suicidal behaviour. *International Journal of Environmental Research and Public Health, 14*(6), 575. https://doi.org/10.3390/ijerph14060575

iv. Chapter 6

The research presented in Chapter 6 is published in:

Wadman, R., **Nielsen, E.,** Brown, K.,[ǂ] Williams, A. J.,[ǂ] O'Raw, L., Sayal., K. & Townsend, E. (2020). *"These things don't work".* Young people's views on harm minimisation strategies as a proxy for self-harm: a mixed methods approach. *Archives of Suicide Research, 24*(3), 384-401. https://doi.org/10.1080/13811118.2019.1624669

v. Additional publications arising from this PhD

In addition to the publications outlined above, this PhD studentship has also led to the publication of the following papers (see Appendix F):

Niederkrotenthaler, T., Gunnell, D., Arensman, E., Pirkis, J., Appleby, L., Hawton, K., John, A., Kapur, N., Khan, M., O'Connor, R., Platt, S., & **the International COVID-19 Suicide Prevention Research Collaboration** (2020). Suicide Research, prevention, and Covid-19: Toward a global response and the establishment of an international research collaboration. *Crisis, 41*, 321-330. https://doi.org/10.1027/0227-5910/a000731

Townsend, E., **Nielsen, E.,** Allister, R., & Cassidy S. A. (2020). Key ethical questions for research during the COVID-19 pandemic. *Lancet Psychiatry*. 7: 381. https://doi.org/10.1016/S2215-0366(20)30150-4

Padmanathan, P., Biddle, L., Hall, K., Scowcroft, E., **Nielsen, E.,** & Knipe, D. (2019). Language use and suicide: an online cross-sectional survey. *PLoS One, 14*(6), e0217473. https://doi.org/10.1371/journal.pone.0217473

Wadman, R., Williams, A. J[*]., Brown, K[*]., & **Nielsen, E.** (2019). Supported and valued? A survey of Early Career Researchers' experiences and perceptions of youth and public involvement in self-harm, suicide and mental health research. *Research Involvement and Engagement, 5*, 16. https://doi.org/10.1186/s40900-019-0149-z

Nielsen, E. & Townsend, E. (2018). Public perceptions of self-harm – A test of an attribution model of public discrimination. *Stigma and Health, 3*(3), 204-218. https://doi.org/10.1037/sah0000090

Williams, A. J[*]., **Nielsen, E.** & Coulson, N. S. (2018). "They aren't all like that": Perceptions of clinical services, as told by self-harm e-communities. *Journal of Health Psychology*. https://doi.org/10.1177/1359105318788403

Nielsen, E. & Townsend, E. (2017). Public Perceptions of Self-Harm: Perceived Motivations of (and Willingness to Help in Response to) Adolescent Self-Harm. *Archives of Suicide Research, 22*(3), 479-495. https://doi.org/10.1080/13811118.2017.1358223

Nielsen, E., Kirtley, O. J., & Townsend, E. (2017). 'Great powers and great responsibilities': A brief comment on a brief mobile app reduces nonsuicidal and suicidal self-injury: Evidence from three randomized controlled trials (Franklin et al., 2016). *Journal of Consulting and Clinical Psychology*, *85*(8), 826-830. https://doi.org/10.1037/ccp0000189

Nielsen, E., Padmanathan, P., & Knipe, D. (2016). Commit* to change? A call to end the publication of the phrase 'commit* suicide'. *Wellcome Open Research*. https://doi.org/10.12688/wellcomeopenres.10333.1

vi. Publications (submitted)

Littlewood, D., van Ballegooijen, W., **Nielsen, E.,** Kapur, N., & Gooding, P. (submitted). Temporal network analysis of the proximal relationships between psychological factors and suicidal ideation: An ecological momentary assessment study.

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During my PhD, I completed a visiting fellowship to Professor Matthew Nock's laboratory, Harvard University (Nock Lab at Harvard). This was supported by an Economic and Social Research Council (ESRC) Overseas Institutional Visit (OIV) grant.

A number of conference grants allowed for the presentation and dissemination of this doctoral work. Conference grants were obtained from: Autistica; the Economic and Social Research Council (ESRC); the University of Nottingham Graduate School Travel Prize and the Experimental Psychology Society (EPS) Grindley Grant.

My work to date has been further supported by advanced methods training bursaries, workshop bursaries and research grants from: the School of Psychology, University of Nottingham; the Economic and Social Research Council (ESRC) Advanced Training Bursary, University of Nottingham; Economic and Social Research Council (ESRC) Training Bursary, University of Oxford; the Mental Health Research Group, Wolfson Institute, Durham University, and a research support grant from The British Psychological Society (BPS) Psychology Postgraduate Affairs Group (PsyPAG) Research Grant Bursary.

Abbreviations

A&E	-	*Accident and Emergency*
AAQ	-	*Acceptance and Action Questionnaire*
AAQ-II	-	*Acceptance and Action Questionnaire-II*
ABUSI	-	*Alexian Brothers Urge to Self-Injure Scale*
ACT	-	*Acceptance and Commitment Therapy*
AFQ-Y	-	*Avoidance and Fusion Questionnaire for Youth*
AFSP	-	*American Foundation for Suicide Prevention*
AIC	-	*Akaike Information Criterion*
AJW	-	*A. Jess Williams*
APMS	-	*Adult Psychiatric Morbidity Survey*
ASET	-	*Autobiographical Self-Enhancement Training*
BPD	-	*Borderline Personality Disorder*
BPS	-	*British Psychological Society*
C	-	*Control*
C-SSRS	-	*Columbia-Suicide Severity Rating Scale*
CAMHS	-	*Child and Adolescent Mental Health Services*
CASE	-	*Child and Adolescent Self-harm in Europe*
CaTS	-	*Card Sort Task for Self-Harm*
CBT	-	*Cognitive Behavioural Therapy*
CI	-	*Confidence Interval*
CIDI	-	*Composite International Diagnostic Interview*
COPE	-	*Coping Orientation to Problems Experienced*
CPT	-	*Cold Pressor Task*
DBT	-	*Dialectical Behavior Therapy*
DERS	-	*Difficulties in Emotion Regulation Scale*
DSHI	-	*Deliberate Self-Harm Inventory*
DSM	-	*Diagnostic and Statistical Manual of Mental Disorders*
DTC	-	*Doctoral Training Centre*
EA	-	*Experiential Avoidance*
EAM	-	*Experiential Avoidance Model*
ECR	-	*Early Career Researcher*
ED	-	*Emergency Department*
EFA	-	*Exploratory Factor Analysis*
EK	-	*Dr Evan Kleiman*
EMA	-	*Ecological Momentary Assessment*
EN	-	*Emma Nielsen*
EPS	-	*Experimental Psychology Society*
ESRC	-	*Economic and Social Research Council*
ET		*Professor Ellen Townsend*
FDC	-	*Functional Dimensions of Coping*
GHO	-	*Global Health Observatory*
GNAT	-	*Go-No-Go Task*
HADS	-	*Hospital Anxiety and Depression Scale*
HLM	-	*Hierarchical Linear Modelling*
IAPS	-	*International Affective Picture System*
IASP	-	*International Association for Suicide Prevention*
IASR	-	*International Academy of Suicide Research*
IAT	-	*Implicit Association Test*

ICC - *Intra-class Correlation*
ICD - *International Classification of Diseases*
ID - *Identifier/Identification*
IMH - *Institute of Mental Health*
IPA - *Interpretative Phenomenological Analysis*
IQR - *Interquartile Range*
IRR - *Incidence Rate Ratio*
ISAS - *Inventory of Statement about Self-Injury*
KB - *Katherine Brown*
LAC - *Looked after children*
LOR - *Dr Linda O'Raw*
M - *Mean*
MBCT - *Mindfulness-Based Cognitive Therapy*
MBT - *Mentalisation Based Therapy*
Mdn - *Median*
MEAQ - *Multidimensional Experiential Avoidance Questionnaire*
NHS - *National Health Service*
NICE - *National Institute for Health and Care Excellence*
NISRA - *Northern Ireland Statistics and Research Agency*
NRS - *National Records of Scotland*
NSHRI - *National Self-Harm Registry Ireland*
NSSI - *Non-suicidal self-injury*
NSSID - *Non-Suicidal Self-Injury Disorder*
OIV - *Overseas Institutional Visit*
ONS - *Office for National Statistics*
OR - *Odds Ratio*
PANAS - *Positive And Negative Affect Scale*
PDA - *Personal Digital Assistants*
PSHE - *Personal, Social and Health Education*
PsyPAG - *Psychology Postgraduate Affairs Group*
RCT - *Randomised Control Trial*
RPS - *Research Participation Scheme*
RW - *Dr Ruth Wadman*
SB - *Suicidal Behaviour*
SBD - *Suicidal Behavior Disorder*
SBRL - *Suicidal Behaviour Research Laboratory*
SD - *Standard deviation*
SE - *Standard Error*
SIB - *Self-Injurious Behaviour*
SMS - *Short Message Service*
SSI - *Suicidal Self-Injury*
TAG - *Trent Assistant Psychologists Group*
TAS-20 - *Toronto Alexithymia Scale-20*
UK - *United Kingdom*
WAYS - *Ways of Coping Questionnaire*
WBSI - *White Bear Suppression Inventory*
WCCL - *Ways of Coping Checklist*
WEIRD - *Western, Educated, Industrialized, Rich, Democratic*
WHO - *World Health Organization*
YRBS - *Youth Risk Behavior Survey*

To my favourite and the best, I dedicate this work to you and to our future plans.

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Table of Contents

Abstract 1
Author contribution 9
Presentations arising from this work 11
i. Chapter 2 11
ii. Chapter 3 12
iii. Chapter 5 13
iv. Chapter 6 14
v. Additional presentations 16
Peer-review publications arising from this work 21
i. Chapter 2 21
ii. Chapter 3 21
iii. Chapter 4 21
iv. Chapter 6 22
v. Additional publications arising from this PhD 22
vi. Publications (submitted) 25
Funding 27
Abbreviations 29
Acknowledgments 35
Table of Contents 39
Table of Figures 49
Table of Tables 51
Chapter 1. INTRODUCTION 53
1.1 Conceptualisations of suicidal intent, nomenclature and definitional ambiguity 56
1.1.1 Conceptualisations adopted throughout this thesis 60
1.1.2 The importance of non-stigmatising language 61
1.2 Difficulties estimating the prevalence of self-harm, attempted suicide and death by suicide 62
1.2.1 Self-harm 62
1.2.2 Fatal self-harm (suicide) 64
1.3 How many people are hurting themselves? 68
1.4 Repetition of self-harm 71
1.5 Why do people self-harm? The functions of self-harm 73
1.6 Experiential avoidance 74
1.6.1 The Experiential Avoidance Model (EAM) 76
1.6.1.1 Moderating factors 79
1.6.1.2 Maintenance factors 79

1.6.1.3 Evidence in support of the EAM 81
1.6.1.3.1 Non-suicidal self-injury and experiential avoidance 81
1.6.1.3.2 Acceptance and Commitment Therapy (ACT) for self-harm 84
1.6.1.3.3 Most participants who self-injure report that they do so to regulate affect 86
1.6.1.3.4 Most participants who self-injure report that they feel better afterwards 88
1.6.1.3.5 'Real-time' studies suggest that negative affect precedes self-injury and that affect improves following self-injury 92
1.6.1.3.6 Laboratory studies show a reduction in negative affect following self-injury proxy and implicit associations between self-injury and relief 96
1.6.1.3.6.1 Non-suicidal self-injury related stimuli 97
1.6.1.3.6.1.1 Injury-related pictures 97
1.6.1.3.6.1.2 Guided imagery 98
1.6.1.3.6.1.3 Implicit Association Tasks 101
1.6.1.3.6.1.4 Go-No-Go tasks 103
1.6.1.3.6.2 Pain stimuli 103
1.6.1.3.7 Research supports components identified as contributing to the cyclical nature of self-injury - maintenance factors 110
1.6.1.4 Scope of the EAM 110
1.6.2 Experiential avoidance and suicidal intent 111
1.7 Coping 112
1.7.1 Coping style – trait models 113
1.7.1.1 Criticisms of trait models of coping 114
1.7.2 Coping process – functional models 114
1.7.2.1 Transactionally defined functional dimensions of coping 115
1.7.2.1.1 Number of coping functions 117
1.8 The relationship between coping and experiential avoidance – overlapping constructs? 120
1.9 Coping and self-harm 121
1.10 The importance of understanding change 126
1.11 Ethical considerations 127
1.12 Research questions 129
1.13 Thesis structure 130
Chapter 2. EXPLORING THE RELATIONSHIP BETWEEN EXPERIENTIAL AVOIDANCE, COPING FUNCTIONS AND THE RECENCY AND FREQUENCY OF SELF-HARM 134
2.1 Introduction 134

2.2 Methods 137
2.2.1 Participants 137
2.2.2 Design and procedure 137
2.2.3 Measures 138
2.2.3.1 Demographic factors 138
2.2.3.2 Experiential avoidance 138
2.2.3.3 Coping 139
2.2.3.4 Affect 140
2.2.3.5 Self-harm 140
2.2.3.5.1 Recency of last self-harm episode 141
2.2.4 Data analysis 141
2.3 Results 143
2.3.1 Preliminary analyses 143
2.3.2 Does experiential avoidance and coping differ between individuals with and without a lifetime history of self-harm? 146
2.3.3 Is there a relationship between experiential avoidance, coping function, and the recency of self-harm? 148
2.3.4 Is there a relationship between experiential avoidance, coping function and the lifetime frequency of self-harm? 151
2.4 Discussion 155
2.4.1 Limitations 162
2.5 Conclusions 164
2.6 Summary 165
Chapter 3. DEALING WITH DIFFICULT DAYS: FUNCTIONAL COPING DYNAMICS IN SELF-HARM IDEATION AND ENACTMENT 167
3.1 Introduction 168
3.1.1 Self-harm ideation versus self-harm enactment 170
3.1.2 Functional coping dynamics and change in self-harm 171
3.1.3 Current study 172
3.2 Method 173
3.2.1 Participants 173
3.2.2 Design and procedure 173
3.2.3 Measures 174
3.2.3.1 Demographic factors 174
3.2.3.2 Coping 174
3.2.3.3 Depressive and anxious symptomatology 175
3.2.3.4 Self-harm 176
3.2.3.4.1 Eligibility 176
3.2.3.4.2 Self-harm status in response to a recent stressor 176

3.2.3.4.2.1 'Self-harm enactment' 177
3.2.3.4.2.2 'Self-harm ideation' 177
3.2.4 Data analysis 178
3.3 Results 179
3.3.1 Preliminary analyses 179
3.3.2 Do coping functions differentiate between self-harm groups? 180
3.3.2.1 Kuskall-Wallis and Mann Whitney U tests 180
3.3.2.2 Hierarchical multinomial logistic regression 181
3.4 Discussion 185
3.4.1 Limitations 187
3.5 Conclusions 191
3.6 Summary 192
Chapter 4. FUNCTIONAL COPING DYNAMICS AND EXPERIENTIAL AVOIDANCE IN A COMMUNITY SAMPLE WITH NO SELF-INJURY VS. NON-SUICIDAL SELF-INJURY ONLY VS. THOSE WITH BOTH NON-SUICIDAL SELF-INJURY AND SUICIDAL BEHAVIOUR 194
4.1 Introduction 196
4.2 Materials and methods 197
4.2.1 Participants 197
4.2.2 Procedure 198
4.2.3 Measures 199
4.2.3.1 Demographic factors 199
4.2.3.2 Self-injury 199
4.2.3.3 Suicidality 199
4.2.3.4 Experiential avoidance 200
4.2.3.5 Coping 202
4.2.4 Data analysis 203
4.3 Results 204
4.3.1 Preliminary analyses 204
4.3.2 Ordered effects in experiential avoidance 205
4.3.3 Ordered effects in functional coping dynamics 206
4.4 Discussion 210
4.4.1 Limitations 213
4.5 Conclusions 215
4.6 Summary 216
Chapter 5. UNDERSTANDING FUNCTIONAL COPING DYNAMICS IN SELF-HARM THOUGHTS AND BEHAVIOURS: A LONGITUDINAL, REPEATED DAILY DIARY STUDY 217
5.1 Introduction 218

5.1.1 The need for real time and real-world assessment 218
5.1.2 Stress, coping, and self-harm – evidence from micro-longitudinal studies 220
5.1.3 Current study 226
5.2 Methods 229
5.2.1 Participants 229
5.2.2 Design and procedure 230
5.2.3 Measures 232
5.2.3.1 Baseline assessments 232
5.2.3.1.1 Demographic factors 232
5.2.3.1.2 Self-harm 233
5.2.3.2 Daily diary assessment 233
5.2.3.2.1 Coping 233
5.2.3.2.2 Level of stress 235
5.2.3.2.3 Self-harm 235
5.2.3.2.3.1 Self-harm behaviour 235
5.2.3.2.3.2 Self-harm thoughts and urges 236
5.2.3.2.3.3 Intention to live and intention to die 239
5.2.4 Data analysis 241
5.3 Results 244
5.3.1 Preliminary analyses 244
5.3.1.1 Number of daily diary entries 244
5.3.1.2 Do those who did and did not confirm adherence to the protocol different in terms of gender, age, and self-harm status? 245
5.3.1.3 Preliminary analysis of the final sample 245
5.3.1.3.1 Lifetime self-harm at time one 245
5.3.1.3.2 Lifetime self-harm and past year self-harm at time two 247
5.3.1.3.3 Self-harm thoughts and behaviours reported during the study period …… 248
5.3.1.3.3.1 Self-harm behaviour 248
5.3.1.3.3.2 Self-harm thoughts 249
5.3.1.3.3.3 Self-harm urges 249
5.3.1.3.3.4 Time spent thinking about self-harm 250
5.3.1.3.3.5 Difficulty resisting self-harm 250
5.3.1.3.3.6 Overall daily average urge or desire to injure yourself 251
5.3.1.3.3.7 Intention to live and intention to die 251
5.3.2 Do functional coping dynamics, stress, and self-harm experience (e.g., thoughts; urges) exhibit day-to-day variability? 253

5.3.3 Do functional coping dynamics moderate the relationship between stress and self-harm behaviour (“yes”/ “no”)? 255
5.3.3.1 Approach coping 255
5.3.3.2 Avoidance coping....256
5.3.3.3 Emotion regulation coping 256
5.3.3.4 Reappraisal coping 257
5.3.4 Do functional coping dynamics moderate the relationship between stress and broader self-harm experience (i.e., thoughts; urges; difficulty to resist; time thinking about self-harm and overall intensity of self-harm experience)? .260
5.3.4.1 Is there an interaction between level of stress and functional coping response in predicting same-day thought of self-harm? 260
5.3.4.1.1 Predicting self-harm thoughts (“yes”/ “no”) 260
5.3.4.1.1.1 Approach coping 261
5.3.4.1.1.2 Avoidance coping....261
5.3.4.1.1.3 Emotion regulation coping 261
5.3.4.1.1.4 Reappraisal coping 261
5.3.4.1.2 Predicting self-harm thought intensity 261
5.3.4.1.2.1 Approach coping 262
5.3.4.1.2.2 Avoidance coping....263
5.3.4.1.2.3 Emotion regulation coping 263
5.3.4.1.2.4 Reappraisal coping 264
5.3.4.2 Is there an interaction between level of stress and functional coping response in predicting with the intensity of same-day self-harm urges?....267
5.3.4.2.1 Approach coping 267
5.3.4.2.2 Avoidance coping....268
5.3.4.2.3 Emotion regulation coping 268
5.3.4.2.4 Reappraisal coping 269
5.3.4.3 Is there an interaction between level of stress and functional coping response in predicting difficulty in resisting self-harming? 272
5.3.4.3.1 Approach coping 272
5.3.4.3.2 Avoidance coping....273
5.3.4.3.3 Emotion regulation coping 273
5.3.4.3.4 Reappraisal coping 273
5.3.4.4 Is there an interaction between level of stress and functional coping response in predicting same-day time thinking about self-harm? 276
5.3.4.4.1 Approach coping 276
5.3.4.4.2 Avoidance coping....277
5.3.4.4.3 Emotion regulation coping 277

5.3.4.4.4 Reappraisal coping 277
5.3.4.5 Is there an interaction between level of stress and functional coping response in predicting the overall intensity of same-day self-harm experience? ……...…….280
5.3.4.5.1 Approach coping..... 280
5.3.4.5.2 Avoidance coping..... 281
5.3.4.5.3 Emotion regulation coping 281
5.3.4.5.4 Reappraisal coping 282
5.4 Discussion..... 283
5.4.1 Limitations..... 290
5.5 Conclusions..... 291
5.6 Summary..... 293
Chapter 6. *"THESE THINGS DON'T WORK."* YOUNG PEOPLE'S VIEWS ON HARM MINIMISATION AS A PROXY FOR SELF-HARM: A MIXED METHODS APPROACH 295
6.1 Introduction..... 295
6.2 Study 5a: Survey study 300
6.2.1 Method..... 300
6.2.1.1 Participants 300
6.2.1.2 Procedure..... 301
6.2.1.3 Measures..... 301
6.2.1.3.1 Demographic factors..... 301
6.2.1.3.2 Self-harm 302
6.2.1.3.3 Coping 302
6.2.1.4 Data Analysis..... 303
6.2.2 Results..... 303
6.2.2.1 Harm minimisation viewed as a form of self-harm 305
6.2.2.2 There is no safe overdose; interpretation of 'dangerous substances' ……308
6.2.2.3 Harm minimisation viewed as a form of coping..... 309
6.3 Study 5b: Interview study..... 309
6.3.1 Method..... 309
6.3.1.1 Participants 309
6.3.1.2 Interviews 310
6.3.2 Analysis 311
6.3.3 Results..... 313
6.3.3.1 Harm minimisation strategies (as a proxy for self-harm) are perceived to be ineffective..... 313

6.3.3.2 Harm minimisation strategies are helpful (to some limited extent)315
6.3.3.3 Harm minimisation strategies as self-harm 316
6.4 Discussion 320
6.4.1 Limitations.....323
6.4.2 Implications 325
6.5 Conclusions 325
6.6 Summary 327
Chapter 7. GENERAL DISCUSSION.....328
7.1 Summary of findings and the unique contribution of this thesis to the literature 330
7.1.1 Can experiential avoidance and functional coping dynamics: (i) differentiate those with and without a lifetime history of self, and (ii) predict the recency and frequency of self-harm (Chapter 2)? 331
7.1.2 What is the relative importance of experiential avoidance and functional coping dynamics in self-harm of differing suicidal intent (Chapter 4)? 332
7.1.3 Can exploring functional coping dynamics help us to understand *when* someone might: (i) think about harming, and (ii) self-harm (Chapter 3; Chapter 5)? 333
7.1.4 Is harm minimisation (sensation and process proxies) viewed by young people, with a history of self-harm, as being an effective in stopping the transition from thinking about self-harming to acting upon those thoughts (Chapter 6)? 335
7.2 Theoretical implications.....336
7.2.1 Lifetime self-harm.....336
7.2.2 Predictions regarding the recency and frequency of self-harm 338
7.2.3 The relationship between experiential avoidance and functional coping dynamics 340
7.2.4 Experiential avoidance and self-harm regardless of intent.....340
7.2.5 Conclusions 341
7.3 Clinical implications.....342
7.3.1 Paying attention to the build-up of seemingly innocuous stressors, the need for out-of-hours access to support, and the role of co-produced safety plans 342
7.3.2 Supporting approach and reappraisal coping.....344
7.3.3 Asking about certainty in relation to intention to live and intention to die and assessing in a non-dichotomous manner.....348
7.3.4 Harm minimisation strategies should not be recommended in isolation and their use must be monitored.....348
7.3.5 Clarity in delivery of the message that there is no safe overdose.....349
7.4 Reflexivity and research practices: Strengths, limitations, and considerations 350
7.4.1 Methodology and study design.....351

7.4.1.1 Measurement 351
7.4.1.1.1 The assessment of self-harm 351
7.4.1.1.1.1 The Inventory of Statements About Self-injury 351
7.4.1.1.1.1.1 "Other" self-harm 353
7.4.1.1.1.2 The assessment of suicidal behaviour 355
7.4.1.1.2 The assessment of coping 356
7.4.1.1.3 The assessment of experiential avoidance 357
7.4.1.2 Cross-sectional research 358
7.4.1.3 Mixed methods research 358
7.4.1.4 Retrospective, self-report 360
7.4.2 Ethical considerations 360
7.4.3 Participant recruitment 363
7.4.4 Involvement and engagement 367
7.5 Key directions for future research 372
7.5.1 Replication 372
7.5.2 Extending to more diverse samples 373
7.5.3 Extending the exploration of change 374
7.5.3.1 Extending the daily diary study 375
7.5.4 Harm minimisation 378
7.6 Conclusions 379
Afterword 381
References 382
Appendix A: Ethics approvals 443
Appendix B: Measures 454
Appendix C: Positive mood induction 474
Appendix D: Chapter 5 supplementary materials 478
Appendix E: Complementary academic activities developed during the period of doctoral study 491
Appendix F: Additional publications arising from doctoral work 502

Table of Figures

Figure 1. The Experiential Avoidance Model of non-suicidal self-injury (EAM), adapted from Chapman and colleagues (2006, p.373) ……..... 78
Figure 2. Categorisation of functions of non-suicidal self-injury (Taylor et al., 2018, p.760) …… 88
Figure 3. PhD datasets mapped to thesis chapters ……..... 132
Figure 4. Median endorsement of coping functions across self-harm groups (no self-harm vs. ideation vs. enactment). Error bars = 95% CI …….. 181
Figure 5. Median endorsement of functional coping dynamics across self-injury groups (Control vs. NSSI vs. NSSI + SB). Error bars = 95% CI ..…… 208
Figure 6. Nested data structure of the repeated, daily diary study ...…… 241
Figure 7. Predicted probabilities of same-day self-harm …….. 256
Figure 8. Predicted probabilities of same-day self-harm (emotion regulation coping) ……...…...…… 257
Figure 9. Predicted probabilities of same-day self-harm (reappraisal coping) ……...…..…….. 258
Figure 10. Predicted values of self-harm thought intensity (approach coping) ……..…….. 262
Figure 11. Predicted values of self-harm thought intensity (emotion regulation coping) …...…….…….. 264
Figure 12. Predicted values of self-harm urge intensity (approach coping) 268
Figure 13. Predicted values of self-harm urge intensity (emotion regulation coping) ……...……... 269
Figure 14. Predicted values of difficulty resisting self-harm (approach coping) ……...…… 273
Figure 15. Predicted values of time thinking about self-harm (approach coping) ……..…… 277
Figure 16. Predicted values of overall self-harm experience (approach coping) ……... 281
Figure 17. Predicted values of overall self-harm experience (emotion regulation coping) ……...……... 282
Figure 18. Fluctuations in daily self-harm (“yes”/“no”) …… 484
Figure 19. Fluctuations in number of daily self-harm episodes ..…… 485
Figure 20. Fluctuations in daily self-harm thought intensity ...……... 486
Figure 21. Fluctuations in daily self-harm urge intensity …...……. 487
Figure 22. Fluctuations in daily time spent thinking about self-harm ...….. 488
Figure 23. Fluctuations in difficulty resisting self-harming ..…….. 489
Figure 24. Fluctuations in overall daily average urge or desire to self-harm ……... 490

Table of Tables

Table 1.	The relationships between the four transactionally defined functional coping dynamics outlined by Cox and Ferguson (1991) and alternative conceptualisations of functional coping. Table adapted from Ferguson and Cox (1997, p. 112)	118
Table 2.	Methods of self-harm reported by participants with a lifetime history of self-harm (*n* = 1,173) …….....	144
Table 3.	Spearman Rho correlation analyses investigating the associations between experiential avoidance, coping function, age and affect (*N* = 1,332) ……	145
Table 4.	Multivariate binary logistic regression exploring whether functional coping dynamics and experiential avoidance predict lifetime history of self-harm, when adjusting for age and affect (*n* = 1,173) …….....	147
Table 5.	A series of univariate negative binomial regressions exploring whether functional coping dynamics and experiential avoidance predict self-harm recency (*n* = 1,173) ..…….	149
Table 6.	Multivariate negative binomial regression exploring whether functional coping dynamics and experiential avoidance predict self-harm recency, when adjusting for age and affect (*n* = 1,173) ....….....	151
Table 7.	Multivariate negative binomial regression exploring whether functional coping dynamics and experiential avoidance predict self-harm lifetime frequency, when adjusting for age and affect (*n* = 1,173)	154
Table 8.	Descriptive statistics, Kruskal-Wallis and Mann Whitney U tests comparing anxious and depressive symptomatology and the endorsement of functional coping dynamics between no self-harm (*n* = 457), ideation (*n* = 50) and enactment (*n* = 650) groups ……....	183
Table 9.	Hierarchical multinomial logistic regression exploring whether functional coping dynamics, anxious and depressive symptomatology predict self-harm experience, in response to a recent stressor …….	184
Table 10.	Binary logistic regression exploring whether versatility of methods, lifetime frequency, and recency of self-injury predict self-injury group (NSSI vs. NSSI + SB) …….	206
Table 11.	Descriptive statistics and Jonckheere–Terpstra trend tests comparing experiential avoidance between Control, NSSI and NSSI + SB groups …….....	209
Table 12.	The modified Alexian Brothers Urge to Self-Injure scale (ABUSI) used for capturing daily self-harm thoughts and urges ……...	237
Table 13.	Intention to live and intention to die variables and the certainty related to these judgements ……...	240
Table 14.	Methods of self-harm reported by participants with a lifetime history of self-harm (*n* = 42) ..……...	247

Table 15. Descriptive and variability statistics for stress, functional coping dynamics and continuous self-harm experiences (prior to centering) ..……... 254
Table 16. Is there an interaction between level of stress and functional coping response in predicting same-day self-harm (“yes”/ “no”)? ……. 259
Table 17. Is there an interaction between level of stress and functional coping response in predicting same-day thought of self-harm (“yes”/ “no”)? ……. 265
Table 18. Is there an interaction between level of stress and functional coping response in predicting the intensity of same-day self-harm thoughts? …….. 266
Table 19. Is there an interaction between level of stress and functional coping response in predicting the intensity of same-day self-harm urges? …… 270
Table 20. Is there an interaction between level of stress and functional coping response in predicting the difficulty in resisting self-harming? ……..... 271
Table 21. Is there an interaction between level of stress and functional coping response in predicting the time spent thinking about self-harming? ……. 275
Table 22. Is there an interaction between level of stress and functional coping response in predicting the overall intensity of same-day self-harm experience? …….. 279
Table 23. Taxonomy of harm-minimisation strategies for self-harm ..…... 297
Table 24. Self-harm methods reported by participants in Study 5a and Study 5b……. 304
Table 25. “Other” self-harm reported in Study 5a (percentage of those who completed the open-ended “other” self-harm question, *n* = 111). A further ten participants indicated “other” self-harm (and frequency in engagement) in the self-harm checklist, however, they did not indicate what their “other” self-harm behaviour(s) were …… 306
Table 26. Additional quotes exemplifying themes identified in Study 5b… 317
Table 27. Summary of the novel contributions made by each empirical chapter…… 330
Table 28. Overview of participants across the lifecycle of the research project 478
Table 29. Self-harm thoughts and behaviours reported during the daily diary study period …… 482

Chapter 1. INTRODUCTION

Suicide is preventable yet, globally, somebody dies by suicide every 40 seconds. This represents around 800,000 lives lost every year and an annual global age-standardised suicide rate of 10.5 per 100,000 population[2] (World Health Organization, 2018). In the United Kingdom (UK), someone dies by suicide approximately every 2 hours (Hopkins, 2002), a rate of 11.2 deaths per 100,000 population[3] (17.2 deaths per 100,000 in males; 5.4 deaths per 100,000 in females) (Office for National Statistics, 2019). This represents a statistically significant increase in the suicide rate, after several years of sustained decline (Office for National Statistics, 2019).

[2] This figure is based on WHO Global Health Observatory (GHO) data provided for the year 2016. This is the most recently released WHO global data. Issues of data quality are noted in the landmark 2014 report, 'Preventing Suicide: A global imperative'(World Health Organization, 2014); while estimates are calculated across all 172 WHO member states, only one-third of these states held good-quality, vital mortality registration data of sufficient quality for direct estimation (n = 60 states, accounting for approximately 29% of global suicide deaths). All other estimates were necessarily calculated based on statistical modelling.

[3] This figure is based on Office of National Statistics (ONS) published data for deaths registered in 2018. This is the most recently released data for the United Kingdom and includes mortality data for England and Wales, held by the ONS, as well as data for Scotland and Northern Ireland, provided by National Records of Scotland (NRS) and the Northern Ireland Statistics and Research Agency (NISRA) respectively. While data is reported for the UK as a whole, including data from Northern Ireland, number of deaths and suicide rates are not given for Northern Ireland. These are published by NISRA. The data include suicide deaths of non-residents. It is important to note that the process of inquest may lead to substantial delays in registering a suicide death, particularly in England and Wales where just under half of suicides registered in 2018 occurred before 2018 (47%). The recently revised ONS definition of suicide includes deaths of undetermined intent in those aged 15 years and over, as well as all deaths from intentional self-harm in all those aged 10 years and over.

As a stark comparison, the latest available statistics indicate that there were 1,782 road deaths (including pedestrian fatalities) in Great Britain in 2018 (Department for Transport, 2019). In the same period, 6,507 suicide deaths were registered (Office for National Statistics, 2019); more than 3 times as many people died by suicide than in road traffic accidents. Globally, more people die by their own hand than by the hand of another (e.g., through war or homicide) (World Health Organization, 2014).

For each individual who dies by suicide many more consider taking their own lives and/or make (an) attempt(s); the figure for attempted suicide globally is estimated at 10 million individuals each year (World Health Organization, 2000; Yip, 2011). There is no country for which suicide is not a major public health concern (World Health Organization, 2014).

Suicidality places a substantial toll on communities. Beyond the societal and economic costs associated with loss of life, suicide engenders arguably unparalleled psychological costs. These are not limited to the immediate psychological distress and suffering experienced by those directly affected (e.g., those who contemplate ending their lives). Rather, the costs include the far-reaching impact and resultant difficulties faced by those surrounding the individual in primary distress (e.g., family; friends; neighbours; colleagues) (Fleischmann & Saxena, 2013). Despite efforts to reduce suicide (and, therefore, the associated costs of suicide) (Department of Health, 2002, 2012), self-harmful behaviours remain: (i) highly prevalent, (ii) a leading cause of both death and medically significant injury (Gunnell et al., 2003; McClure, 2000; Nock et al., 2009), (iii) a leading cause of presentation and admission to general hospital (Bergen et al., 2010; Clements et al., 2016;

Hawton et al., 2007), and (iv) a so-called ‘heavy burden’ for mental health services (Hopkins, 2002).

Suicide prevention strategies consistently highlight the need to better understand and respond to those who self-harm. Here, ‘self-harm’ includes all non-fatal self-poisoning or self-injury, regardless of intent (National Collaborating Centre for Mental Health, 2011; National Institute for Health and Care Excellence, 2004). The 2012 suicide prevention strategy for England (Department of Health, 2012) highlights people with a history of self-harm as a high risk group for suicide. Moreover, the third progress report, published in 2017, identifies self-harm as an area in which the National Strategy needs to increase its strength in focus[4] (Department of Health, 2017).

As Owens and colleagues (2002, p. 193) conclude in their systematic review, “suicide risk among self-harm patients is hundreds of times higher than in the general population”. While many people who self-harm do not intend to take their own lives, they are at a much-increased risk (compared to that of the general population) of later dying by suicide. Retrospective and prospective studies indicate that engagement in self-harmful behaviours is associated with a 15-30 fold increased rate of both attempted suicide and death by suicide (Cooper et al., 2005; Sakinofsky, 2005). At least half of individuals who die by suicide have a history of self–harm and almost a quarter have been treated in a general hospital, for self-harm, in the year preceding their death (Department of Health, 2012; Gunderson & Ridolfi, 2001; Watson, 2000).

[4] The other areas in which the National Strategy is strengthening its focus are: (i) support for those bereaved, and (ii) men. Suicide is the leading cause of death in England for men aged under 50 years (Department of Health, 2017).

While risk of subsequent death by suicide is markedly increased for those who have repeatedly self-harmed (Bergen et al., 2012; Zahl & Hawton, 2004) and/or who have previously been admitted to general hospital following the use of high lethality and/or violent method (Runeson et al., 2010), those with a history of low lethality self-harm are also at increased risk (Carroll et al., 2016; Hawton, Bergen, et al., 2012; Stanley et al., 2001). This includes self-harm enacted: (i) in the community (which may or may not have come to the attention of medical services), and (ii) in the absence of suicidal intent (Andover et al., 2012; Whitlock et al., 2012). Further, this heightened risk of subsequent death by suicide is independent of shared risk factors between non-suicidal and non-zero intent behaviours.

As well as being the pre-eminent predictor of death by suicide, self-harmful behaviour is also associated with serious emotional distress (Williams & Pollock, 2000). While self-harm is a multifaceted and complex phenomenon, the examination of psychological variables is central to identifying key factors influencing self-harm behaviour (e.g., Chapman et al., 2006; O'Connor, 2011a, 2011b; O'Connor & Kirtley, 2018).

1.1 Conceptualisations of suicidal intent, nomenclature and definitional ambiguity

Defined broadly, self-harmful behaviour refers to acts that involve self-initiated and self-directed, direct intentional damage. The term includes potentially lethal behaviours, intended lethal behaviours, as well as behaviours enacted in the absence of any attempt to die or those with unknown or unclear

motivation(s)[5]. Research indicates that self-harmful behaviours enacted with, and in the absence of, suicidal intent frequently co-occur (e.g., Berger et al., 2013). However, the nature of this relationship is a source of great debate (Jacobson et al., 2008; Laye-Gindhu & Schonert-Reichl, 2005).

Despite a large literature, definitional ambiguities persist (Cloutier et al., 2010). The nomenclature of the field remains non-standardised and non-agreed (Silverman, 2011). Much of this reflects a lack of consensus regarding the conceptualisation of suicidal intent and the delineation of non-suicidal and suicidal behaviours; while intentions are crucial to the psychological meaning of the act, there is no agreed taxonomy of self-harmful behaviours (McDougall et al., 2010; Whitlock et al., 2006). This ambiguity has both methodological implications and clinical ramifications (Buckingham et al., 2008). The ongoing debate surrounding the inclusion of 'Non-Suicidal Self-Injury Disorder' (NSSID) and 'Suicidal Behavior Disorder' (SBD) within the disorders for further study section of the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5: American Psychiatric Association, 2013) serves only to highlight some of these issues.

Some argue that self-harm occurs dimensionally along a continuum of suicidal intent (e.g., Carter et al., 2005; Harriss et al., 2005; Kapur et al., 2013; O'Connor et al., 2010). This is the predominant conceptualisation in the UK, and is aligned with the definition of self-harm adopted in the National Clinical

[5] Self-harmful behaviours may be associated with a range of motivations, intentions and expectation. It is rare that these are uncomplicated (Hopkins, 2002). A wish to die and intent to die may not be synonymous terms. Furthermore, the expected outcome of an act of harming may not align with the individual's intent.

Guidelines, “self-injury or self-poisoning irrespective of the apparent purpose of the act” (National Collaborating Centre for Mental Health, 2011; National Institute for Health and Care Excellence, 2004, p. 6). In such an account, non-suicidal self-harm and suicidal self-harm represent anchor points, with the continuum encompassing self-harm of mixed or ambivalent intent (e.g., where an individual may be unsure or balanced in their wish to live and wish to die; where an individual may wish to live, but feel compelled to act in a way which they know may have medically severe/lethal consequences).

Conversely, others consider: (i) suicidal self-injury (SSI) (with intention to die), and (ii) non-suicidal self-injury (NSSI) (“the direct, deliberate destruction of one’s own body tissue in the absence of intent to die”; Butler & Malone, 2013, p. 324) to be binary phenomena (e.g., Klonsky, 2007a; Nock, 2010; Nock & Kessler, 2006; Ross & Heath, 2002). This conceptualisation, which is predominant in North America, still encompasses the range of behaviours captured within the dimensional account of ‘self-harm’ outlined above (commonly under the umbrella term ‘self-injurious behaviour’, SIB). Critically, however: (i) non-suicidal behaviour is viewed as qualitatively different to behaviour with some suicidal intent, and (ii) ‘non-zero’ intent behaviour is categorised within ‘suicidal’ self-injury, therefore *erring on the side of caution* when classifying behaviour with mixed motivation or ambivalent intent (Nock, 2010).

Here, it is pertinent to note how often individuals who engage in self-harmful behaviours are unable to identify their own intentions, appear ambivalent, or believe they behave without distinct motivation (Csipke & Horne, 2008; Royal College of Psychiatrists, 2011). In an explorative study

investigating the intentions of individuals attending Accident and Emergency (A&E) following an episode of self-harm, Schnyder and colleagues (1999) report that over seventy percent (73%) of participants could not identify clear motivational antecedents. The WHO report that "most persons who engage in suicidal behaviour are ambivalent about wanting to die at the time of the act" (World Health Organization, 2014).

Similarities have been identified between those classified as endorsing self-injurious or suicidal behaviour, questioning the validity of a dichotomous construct based on the definite 'presence' or 'absence' of suicidal intent; both behaviours share common aetiologies, risk and protective factors, and correlates (Bennett et al., 2003; Linehan et al., 1994). A growing body of research highlights the frequent co-occurrence of suicidal and non-suicidal thoughts and behaviours, in both clinical and non-clinical samples (Andover & Gibb, 2010; Andover et al., 2012; Glenn & Klonsky, 2009; Jacobson et al., 2008; Langbehn & Pfohl, 1993; Nock et al., 2006, 2009; Stanley et al., 2001). Indeed, the common co-occurrence, or indeed fluctuations, of intent within (or in close proximity to) a given episode of harming is a primary argument against dichotomous conceptualisations (Kapur et al., 2013).

While it is true that NSSI and suicidal behaviours differ in suicidal intent, this is reflected in both the dimensional and dichotomous conceptualisation. Some researchers argue that these behaviours can be separated by their function. However, functionality may overlap (e.g., escape from intense, aversive affect) (Andover & Gibb, 2010). A recent taxometric

analysis[6] indicated that the latent structure of self-injurious behaviour is dimensional; with those engaged in suicidal self-injury differing from those engaged in non-suicidal self-injury in degree rather than in kind (Orlando et al., 2015). This suggests that both behaviours are variants of the same underlying construct and is consistent with the conceptualisation of 'self-harm' as outlined above.

1.1.1 Conceptualisations adopted throughout this thesis

Within this thesis, Studies 1 (Chapter 2), 2 (Chapter 3), 4 (Chapter 5) and 5 (Chapter 6) consider self-harm regardless of intent. This is in line with UK definitions of self-harm (National Collaborating Centre for Mental Health, 2011; National Institute for Health and Care Excellence, 2004) and taxometric analysis which suggests non-suicidal and suicidal behaviours fall along a continuum of intent (rather than being dichotomous entities) (Orlando et al., 2015). Study 3 (Chapter 4) compares different self-injury histories (no self-injury; non-suicidal self-injury only; non-suicidal self-injury and suicidal behaviour). While assessing self-harm regardless of intent, Chapter 5 considers intention to live and intention to die, measured as both dichotomous ("yes"/"no") questions and on a continuum. Participants' certainty in making their judgements is also explored.

[6] The study employed a college-based sample of 1,525 female undergraduates who reported a history of self-injurious behaviour(s). The empirically derived indicators included within the analysis included: intent to die, suicidal history, frequency and severity of self-injurious behaviour, and number of methods used.

1.1.2 The importance of non-stigmatising language

Countering stigma is a fundamental facet of suicide prevention efforts. Integral to this is the promotion of accurate and sensitive language. While a range of potentially unhelpful terminology has been identified (e.g., Silverman, 2006), the phrase 'commit* suicide' has prompted the most marked opposition.

Researchers, clinicians and suicidologists hold a collective responsibility for the language propagated and the messages this imparts. As previously argued, the phrase 'commit* suicide' should be avoided in all arenas[7] (Nielsen, Padmanathan, et al., 2016) – primarily given connotations of illegality, immorality and the distress reported by some of those directly affected by suicide, including some survivors of suicide loss, at the use of this term (Nielsen, Padmanathan, et al., 2016; Padmanathan et al., 2019) – which is why this phrase will be avoided throughout this thesis. Variation in opinion exists amongst people affected by suicide regarding preferred language choices, often depending on contextual factors. However, the findings of our empirical work indicate that 'attempted suicide', 'took their own life', 'died by suicide', and 'ended their life' are considered most acceptable to those who have been directly affected (Padmanathan et al., 2019), which is why this language is used throughout.

[7] Here, consideration and guidance is given in reference to language that is used outside of quoted prose, as we believe that individuals have the right to describe their own experiences in their own terms; therefore, particularly in qualitative or mixed methods papers, the stemword 'commit' may appear appropriately within a verbatim quotation from a participant (Nielsen, Padmanathan, et al., 2016).

‘Person-first’ language (e.g., ‘people who self-harm’, rather than ‘self-harmers’) is used throughout this thesis. This reflects an appreciation that individuals are not defined by a single behaviour or the distress unpinning this. The promotion of person-first language is also aligned with editorial guidelines cautioning against referring to people in ‘diagnostic’ (or, here, quasi-diagnostic) terms (American Psychological Association, 2010).

In the past, researchers and clinicians have commonly used the term ‘deliberate self-harm’. However, concerns have been levelled regarding: (i) the potential for negative connotations, particularly inaccurate associations with notions of control and manipulation (Kingdon, 2005; Silverman, 2006), and (ii) the accuracy of the phrase, particularly when self-harm is enacted when in a dissociative state (National Institute for Health and Care Excellence, 2004). In line with recommendations from the Royal College of Psychiatrists and the National Clinical Practice Guidelines for short-term management of self-harm, produced by the National Institute for Health and Clinical Excellence (NICE), the phrase ‘deliberate’ has been omitted in all instances, instead referring simply to ‘self-harm’.

1.2 Difficulties estimating the prevalence of self-harm, attempted suicide and death by suicide

1.2.1 Self-harm

Statistics on the lifetime prevalence and annual incidence rates of non-fatal self-harm can be difficult to calculate and to interpret. While internationally accepted means of recording deaths have been outlined, there is no equivalent means of standardising the collection of information for (non-fatal) self-harm.

The lack of agreed nomenclature and the variation in definitions adopted between different settings (e.g., between different regions, countries, or jurisdictions; between differing research laboratories) provides a partial explanation for the markedly different estimates from different sources.

It is likely that many reported figures for self-harm represent underestimations, given the reliance on self-report or restricting figures to hospital presentation and admission rates. Many who self-harm do not seek medical intervention(s) (Hawton et al., 2002; Madge et al., 2008; Whitlock et al., 2006), therefore hospital data represent conservative estimates of the extent of the behaviour (Craigen et al., 2010; Geulayov et al., 2018; Hawton et al., 2006; McMahon et al., 2014). Further, the data may be biased for the reasons outlined below.

In addition to only including those who: (i) require medical intervention as a result of their self-harm, and (ii) seek this help, estimated rates based on hospital data will be inaccurate if: (i) the hospitals in which the data are collected are not representative (e.g., of the region, nationally – dependent upon the research question), (ii) the medical structure in the area of data collection is such that many presentations for self-harm are dealt with in medical settings outside of general hospitals (e.g., in clinics; in GP surgeries), and, (iii) if the recording processes within the hospital setting are not well established, not applied consistently or are not nuanced in their capacity to record critical information for rate calculation (e.g., reported rates may not be accurate if: only the number of treatment episodes are captured, not the number of treated individuals – some people may present multiple times during a given period of data collection; those who die as a result of their actions are not

excluded – this is not non-fatal self-harm; the reporting method excludes capturing of those directly admitted to a medical ward or excludes those not admitted to a medical ward; self-harm is recorded as 'accidental' or if intent is systematically not recorded by other means).

National-level hospital monitoring or nationally representative registry of medically treated self-harm data is not standard. Available data are limited to four, high-income countries (the Flanders region of Belgium; Ireland; Sweden and the USA) (World Health Organization, 2014). The marked lack of population-level monitoring in most nations means that it is rarely possible to integrate hospital-level data with national suicide rates.

A further complication, when considering reported rates of non-suicidal self-injury, is that many NSSI studies group people based on lifetime history, yet do not also systematically assess for the presence of suicidal thoughts and behaviours (e.g., Heath et al., 2008). It is therefore impossible to determine whether the identified individuals have a history of NSSI only, or whether they have a history including non-zero intent behaviour, which appeared absent merely because it was not assessed. This is important, as the latter would constitute suicidal self-injury, not non-suicidal self-injury, if adopting a dichotomous conceptualisation of self-harmful behaviours.

1.2.2 Fatal self-harm (suicide)

WHO member states use the International Classification of Diseases (ICD) to classify diseases and to record cause of death. However, despite this internationally-accepted, standardised means of recording deaths, globally there remains an issue of poor-quality mortality data (World Health

Organization, 2014). There is large variability and inconsistency in the reporting of suicide deaths, with marked issues of misclassification and systematic under-reporting. Suicides are most commonly misclassified as "deaths of undetermined intent" (ICD-10 codes Y10-Y34), and also as "accidents" (codes V01-X59), "homicides" (codes X85-Y09) and "unknown cause" (codes R95-R99) (World Health Organization, 2014).

The reliability of suicide statistics is not routinely assessed. While findings of a systematic review indicate a general under-reporting of suicide deaths, the review also serves to highlight the lack of evidence, in particular the dearth of national and/or international comparisons (Tøllefsen et al., 2012).

Suicide registration is a multilevel procedure, which may involve the co-ordination of multiple responsible authorities. Registration may be further complicated by medical and legal concerns (World Health Organization, 2014). Registering a death as suicide may be viewed as 'unfavourable' or feared as potentially distressing for those bereaved (Secretary of State, 2003). Under-reporting of suicide is arguably likely to be particularly marked in societies in which suicide remains highly stigmatised (World Health Organization, 2014), religiously sanctioned (Kelleher et al., 1998), or illegal (Tøllefsen et al., 2016). A recent global review of the legal status of suicide indicated that, while in the majority of countries (and states) suicide is not a crime, it is illegal in 25 countries (with a further 20 countries adhering to Sharia or Islamic law) (Mishara & Weisstub, 2016). Determination may be further confounded by case-specific factors; for example, the age, gender and social class of the deceased (Rockett et al., 2010), differing attitudes of the professional (e.g., coroner; medical examiner) classifying the death, particularly in regards to the

degree of certainty necessitated to make a judgement (e.g., 'on the balance of probability' vs. 'beyond reasonable doubt'), and considerations regarding legal complications or insurance (Tøllefsen et al., 2016; World Health Organization, 2014).

In the UK, suicide is defined as death in which the underlying cause was intentional self-harm, for persons aged 10 years and over (ICD-10 codes: X60-X84). Deaths recorded by the Coroner (England, Wales and Northern Ireland) or the Procurator Fiscal (Scotland) as "open verdict" or of "undetermined intent"[8], in persons aged 15 years and over, are also included within the official suicide statistics produced by the Office for National Statistics (Department of Health, 2002; Gunnell et al., 2011; Office for National Statistics, 2016).

Driven by case law, in particular the Middleton Judgement, the UK has seen an increase in the use of 'narrative verdict' – as opposed to the more common 'short form' verdicts – over recent years (Gunnell et al., 2011). Narrative verdicts record how and in what circumstances a death occurred. In many instances, intent (e.g., suicide; accidental) as well as mechanism (e.g., method) are delineated. However, in some instances, intent is not outlined. These deaths are classified as "hard-to-code" by the ONS. As it is mandated that "if no indication of intent has been provided by the certifier, a death from injury or poisoning must be coded as accidental" (Office for National Statistics, 2016, p. 19), concerns have been levelled as to whether the use of narrative

[8] In such instances, there is insufficient evidence to *definitively* determine the intent underpinning the individual's actions; the intention to harm or to die could not be established.

verdicts masks recording of suicide deaths, therefore contributing to an underestimation of national suicide rates.

The ONS estimates the impact of "hard-to-code" narrative verdicts on the reported suicide rate, via simulations. In England in 2015, when "hard-to-code" narrative verdict deaths with an underlying cause of accidental hanging (ICD-10 codes W75 to W76) or accidental poisoning (ICD-10 codes X40 to X49) were added to existing suicides, the suicide rate increased from 10.1 to 16.6 deaths per 100,000 population (an increase of nearly 5%). While it is unlikely that all "hard-to-code" deaths are in fact suicides – and the observed increase in this simulated data is not statistically significant – concerns over the impact of narrative verdicts remain. Not least, as the simulation is likely to be an underestimation, in so far as hanging and poisoning are not the only common methods of suicide which may have received a "hard-to-code" verdict (e.g., this simulation does not include "hard-to-code" narratives with death via drowning or jumping).

In May 2019, the Court of Appeal in England and Wales handed down a ruling on the determination of suicide at inquest. The ruling upholds a key decision taken by the High Court in 2018, changing the standard of proof required from criminal ('beyond reasonable doubt') to civil ('on balance of probabilities'). In essence, this lowered the burden of proof required for a suicide conclusion (previously, verdict). This is likely to have an impact on calculated suicide rates (Appleby et al., 2019). The change does not affect Northern Ireland or Scotland (Office for National Statistics, 2019).

1.3 How many people are hurting themselves?

In Great Britain, figures for adult, lifetime, non-suicidal self-injury appear to be increasing. In England, results of the most recent Adult Psychiatric Morbidity Survey (APMS) – a nationally representative study – indicate that, in 2014, 7.3% of people (aged 16-74 years) had, during their lifetime, engaged in an act of non-suicidal self-injury. Furthermore, and worryingly, more than one in five people (20.6%) had thought about taking their own life and 6.7% had made a suicide attempt (McManus et al., 2016). This compares to previously reported figures for non-suicidal self-injury ranging from 2%, across ages 16-74 years (Meltzer et al., 2002) (2% of men, 3% of woman), to 3.4-4.9%[9] (National Statistics et al., 2009).

In children and adolescents, the prevalence is typically much higher; a 2018 meta-analysis sought to provide an accurate estimate of self-harm in young people by collating information from all community-based studies (across 41 countries) from 1990-2015. One hundred and seventy-two identified datasets indicated a lifetime prevalence of 16.9%, with rates rising over time. (Gillies et al., 2018).

In the UK, school-based research indicates that 10%-13.8% of adolescents have self-harmed *at any point*, by the age of 16 years (Hawton et al., 2002; O'Connor et al., 2014; O'Connor, Rasmussen, Miles, et al., 2009), with 6.9% of 15-16-year-olds reporting self-harm in the year prior to survey (Hawton et al., 2002). Approximately the same number of adolescents who

[9] Dependent upon mode of elicitation: face-to-face questioning versus self-completion questions.

report self-harm, report self-harm ideation only (12.2%); these young people had thought about harming themselves, but had not acted upon their thoughts (O'Connor et al., 2012). Worryingly, Hawton and colleagues (2002) indicate that 15% of adolescents (aged 15-16 years) report suicidal ideation (but no self-harm) in the previous 12 months.

Considering older students, data from a national Norwegian health survey of higher education students in 2018 (N = 50,054 students aged 18-35 years; this is a response rate of 31%) indicate that 19.6% of students have a lifetime history of NSSI and 22.6% of NSSI ideation. Twenty-one percent (21.0%) of respondents reported lifetime suicidal thoughts, with 7.2% experiencing these in the year prior to the study (Sivertsen et al., 2019). A national prevalence study of young adults' experiences, in Scotland (N = 3, 508 young adults aged 18-34 years), reported similar rates of lifetime non-suicidal self-injury, here disclosed via interview assessment (16.2%). Eleven percent (11.3%) of participants reported a history of suicide attempt (O'Connor et al., 2018).

Data from a large, international study – the WHO World Mental Health Survey – were analysed to obtain representative prevalence estimates of suicidal thoughts and behaviours across four groups of age-matched peers: (i) university students, (ii) those who dropped out of university, (iii) those who completed secondary school but never went to university, and (iv) those who did not complete secondary schooling. Across 21 countries, face-to-face interviews were conducted with 5,750 young people (aged 18-22 years; weighted mean response rate = 71.4%). Just under 2% (1.9%) of university students reported suicidal thoughts and behaviours in the previous 12 months.

This was significantly lower than for same-aged groups who were not in university (prevalence rate: 3.4%). Lifetime prevalence rates of suicidal thoughts and behaviours was also lower for those who had entered university (e.g., those who started, regardless of whether they completed or dropped out; 7.2%) compared to those who had never attended university (8.2%) (Mortier, Auerbach, et al., 2018).

A recent meta-analysis collated all prevalence information for studies examining the occurrence of suicidal thoughts and behaviours in university student samples (N = 634,662; 36 studies). They report lifetime prevalence estimates of 22.3% for suicidal ideation, 6.1% for suicide plans and 3.2% for suicide attempts. The figures for suicidal thoughts and behaviours within the last year were 10.6%, 3.0%, and 1.2%, respectively (Mortier, Cuijpers, et al., 2018). These rates are markedly higher than reported in the WHO World Mental Health Survey data (Mortier, Auerbach, et al., 2018). This may be due to a number of reasons including, but not limited to: (i) the countries studied (e.g., there is often a bias in university-based research to North American institutions, where prevalence rates are typically high. The WHO World Mental Health Survey data come from 21 countries globally), and (ii) methodological issues or differences (e.g., response rate; method of eliciting data [self-report questionnaire versus face-to-face interview]; weighting and controls in statistical analysis; the use of single or multiple item assessment of self-injurious thoughts and behaviours).

The inverse relationship between age and self-reported lifetime prevalence of self-harm (e.g., Meltzer et al., 2002, report lifetime NSSI engagement in the youngest adult age group of 5%, falling to 0.2% in those

aged 65-74 years) may suggest that the incidence of this behaviour is increasing. However, some caution in interpretation is advised, especially when considering the *magnitude* of the estimated increase in prevalence. Sustained efforts have been made over recent years to de-stigmatise mental health (e.g., Time to Change), including targeted campaigns aiming to promote discussion and disclosure around self-harm and suicidality (e.g., 'Find Mike', in collaboration with Rethink Mental Illness; Talk Through The Taboo, PAPYRUS). The literature addressing public perceptions of self-harm is severely restricted (Nielsen & Townsend, 2018). Therefore, a question remains as to how to decouple the potential for increased disclosure – via a reduction in stigma (a barrier to disclose) – and the magnitude of a true increase in the incidence and prevalence of self-harm.

Community-based research is important given that this is where the majority of self-harm is taking place. Research evidence suggests that those seeking and receiving input (e.g., presenting to hospital for medical attention; receiving care from mental health services) represent the 'tip of the iceberg' (Geulayov et al., 2018; McMahon et al., 2014). Many of those who die by suicide are not known to mental health services (O'Neill et al., 2019). Much self-harm goes undisclosed, and therefore unrecorded (and potentially unsupported). It is, nonetheless, significant – both in terms of associated risks and the underlying distress.

1.4 Repetition of self-harm

Repetition of self-harm in not uncommon. Based on hospital-treated samples, a systematic review indicated the rate of (non-fatal) repetition of self-harm,

within one year of index episode, is approximately 15%, rising to between 20-25% in the years thereafter. Two percent of individuals who presented to general hospital following self-harm died by suicide within one year (Owens et al., 2002). This overall picture of repetition risk is echoed in available national monitoring data: using the National Self-Harm Registry Ireland (NSHRI) data (2007-2013), Griffin and colleagues indicate that around one quarter (22.3%) of patients treated in general hospital for self-harm represent to an Emergency Department (ED) at least once. One in ten (9.9%) present on two or more occasions, post index episode. While a minority of patients frequently re-present; 494 individuals (0.9%) received care in general hospital on 10 or more occasions (Griffin et al., 2015).

The risk of repetition of (non-fatal) self-harm appears similar in young people (aged 15–19 years); more than 10% of individuals re-presented to general hospital with (non-fatal) self-harm within a year (Hultén et al., 2001). For those for whom the study index episode was not their first presentation, repetition rates were 24% (compared to 6.8% in those for whom the index episode was their 'first ever' presentation). Many individuals re-presented frequently (maximum number of presentations = 21).

A limited number of studies have addressed repetition of self-harm in community-based populations; the majority of empirical research conducted with young people does not include follow-up measurements within the research protocol, thus limiting our ability to determine repetition prospectively. While cross-sectional, school-based, research suggests high levels of self-harm repetition (e.g., 44.4%-62.4% in the Child and Adolescent Self Harm in Europe [CASE] study of over 30,000 adolescents) (Madge et al.,

2008), estimates gauged from prospective assessment of repetition are varied from a more modest repetition across 6 months of 3.6% (in adolescents pupils aged 15–16 years) (O'Connor, Rasmussen, & Hawton, 2009) to 55.1% of those reporting self-harm at baseline also reporting self-harm at follow-up, 6 months later (Stallard et al., 2013) (in 3,964 pupils aged 12-16 years, across eight secondary schools in England). Here, rates of first-time self-harm across 6 months were reported as 6.0% for acts and 9.1% for thoughts.

When considering repetition of self-harm in young people referred to specialist (community-based) Child and Adolescent Mental Health Services (CAMHS), 6 month repetition rates of between 15.4% (in ages 13-19 years – young people were recruited as part of an intervention RCT investigating home-based, family interventions following self-poisoning) (Chitsabesan et al., 2003) and 67.3% (in ages 13-17 years – young people were recruited to a longitudinal study investigating to role of attachment in the repetition of self-harm. Participants were recruited via CAMHS clinics and general hospital, following self-harm presentation) (Glazebrook et al., 2015) are noted.

Given the high risk of repetition and negative outcomes associated with escalation of these behaviours, it is important to explore the dynamics underlying self-harm, and, in particular, what might drive and also break cyclical re-engagement in this behaviour.

1.5 Why do people self-harm? The functions of self-harm

An individual may self-harm for many reasons, including the desire to reduce negative affect, to escape, to gain a sense of mastery or control, for 'anti-suicide' motivations, as a distraction or as means of self-punish or as a form of

expression or boundary definitions where other avenues of communication have failed (Edmondson et al., 2016; Rodham et al., 2004; Scoliers et al., 2009; Suyemoto, 1998). There is a convergence of robust research evidence indicating that self-harm functions primarily as a means of altering or ameliorating emotional experiences – typically intense aversive states of mind (see Section 1.6.1.3.3 – 1.6.1.3.6 for discussion). That is to say, self-harm provides people with a way to escape from distress, at least in the short term (Chapman et al., 2006).

1.6 Experiential avoidance

In the broadest sense, the term experiential avoidance (EA) encompasses all forms of avoidance and escape behaviour that are utilised as methods by which to alter the form, intensity and/or function of experience. Characterised by the drive to avoid distress, experiential avoidance is defined as the verbally mediated tendency for non-acceptance or avoidance (e.g., escape; suppression; modification; control) of negative affective, but not overtly dangerous, states (Chawla & Ostafin, 2007; Gámez et al., 2011; Hayes et al., 1996).

Experiential avoidance is conceptualised as the opposite of experiential acceptance or flexibility, which "involves experiencing events fully and without defence… and involves making contact with the automatic or direct stimulus functions of events, without acting to reduce or manipulate those functions" (Hayes, 1994, p. 30). The term experiential avoidance denotes a desire to suppress unwanted emotions, thoughts and sensations and relates to an individual's response to their feelings rather than *what* they are feeling per se (Chawla & Ostafin, 2007; Gámez et al., 2011).

Experiential avoidance is characterised by two composite aspects: an unwillingness[10] to remain in contact with private aversive experiences, as well as those actions taken in order to alter aversive experience(s) and/or the events that precipitate them (Hayes et al., 1996). There remains some debate as to whether to best conceptualise EA as a state or trait phenomenon; whether experiential avoidance is a general tendency or a behavioural 'choice' in response to a given situation (Gámez et al., 2011).

While experiential avoidance is negatively reinforcing and may prove exceedingly effective at terminating unwanted emotional states in the short term, pervasive reliance has detrimental consequences and can lead to a severely constricted life (Chapman et al., 2006). Experiential avoidance becomes a disordered process when applied rigidly and habitually, without exception or sensitivity to the context and/or when excessive energy is directed to the control and management of unwanted private experience, to the detriment of the individual (Bonanno et al., 2004). When resources are indiscriminately allocated to the systematic avoidance of distress, rather than directed to tackling the problem at hand, an increase in (the frequency of) distress is often encountered. This stands in direct opposition to the intended outcome (Gross, 2002; Kashdan et al., 2006).

While some have outlined EA as a discrete strategy of emotion regulation (Aldao et al., 2010), in its original conceptualisation experiential

[10] The word "unwillingness" is commonly used in the literature pertaining to experiential avoidance. This is not to suggest that this is always something which is within an individual's direct control. Indeed, automaticity may represent an important dimension on which EA strategies differ (e.g., voluntary or controlled responses, such as suppression versus involuntary and automatic responses, such as repression) (Chawla & Ostafin, 2007).

avoidance is considered a style of interacting with private events (Hayes et al., 1996). That is, a generalised tendency – or function – which may, secondarily, increase the likelihood of engaging in particular coping strategies that serve similar functions (e.g., thought suppression; behavioural avoidance). Therefore, while coping and experiential avoidance overlap, the construct of EA appears to have arisen from an awareness of the importance of interoceptive exposure (i.e., internal experiences/sensations) (Karekla & Panayiotou, 2011).

Recent conceptualisations of psychopathology have focused on behavioural functionality (Armey et al., 2011). Experiential avoidance is often proposed as central in the aetiology, exacerbation and maintenance of a variety of seemingly dissimilar pathological behaviour (Chawla & Ostafin, 2007). Classic examples of maladaptive EA strategies include excessive drinking, substance use, and high-risk sexual behaviour(s). Contemporary theoretical accounts of non-suicidal self-injury have begun to consider the role of experiential avoidance in the initiation and maintenance of self-harm behaviours.

1.6.1 The Experiential Avoidance Model (EAM)

The Experiential Avoidance Model (EAM: Chapman et al., 2006) provides a theoretical framework to understand the factors which may control engagement in NSSI. The model proposes that NSSI is principally a manifestation of *emotional* avoidance, although the behaviour may also serve to allow an individual to avoid alternate internal experience (e.g., thoughts; memories; somatic sensations).

The EAM views NSSI as a coping strategy used to modulate unwanted or intolerable aversive mental states and posits that a stimulus that elicits an intense aversive emotion may be conducive to a shift towards avoidance repertoires, such as non-suicidal self-injury. Engaging in NSSI leads to short-term symptom relief. This resultant reduction in distress serves to maintain and strengthen the reliance on self-destructive behaviours; the avoidant behaviour is reinforced via temporary relief from, or elimination of, the internal state and forms a self-perpetuating cycle. Thus, the avoidant behaviour becomes an automatic escape response (see Figure 1).

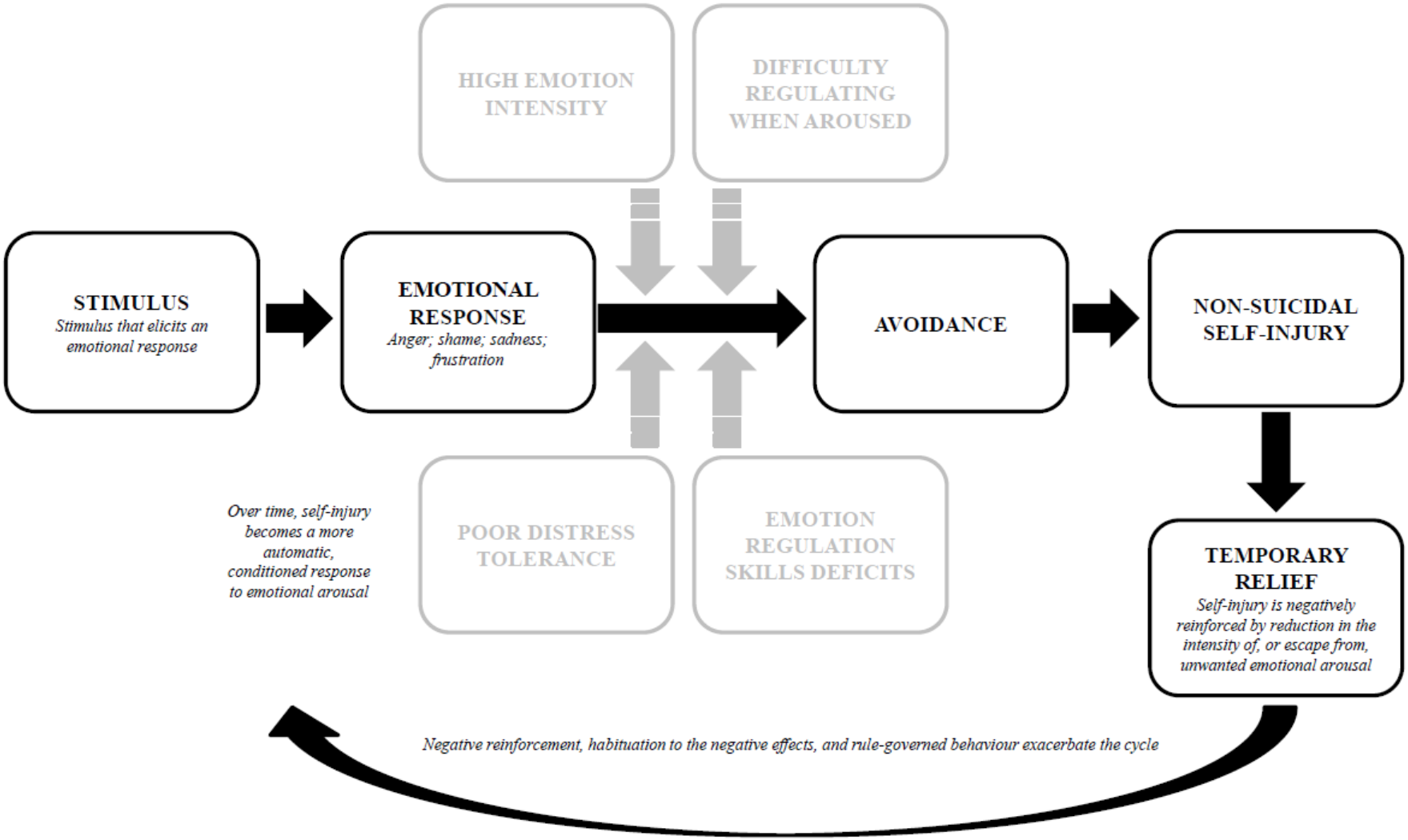


Figure 1. The Experiential Avoidance Model of non-suicidal self-injury (EAM), adapted from Chapman and colleagues (2006, p.373).

1.6.1.1 Moderating factors

The EAM delineates several factors which may be associated with an increased propensity to adopt experientially avoidant strategies. The model suggests that EA response tendencies are especially likely in individuals experiencing heightened emotional intensity, those with deficits in arousal regulation, or those who have poor distress tolerance skills. Additionally, individuals who have difficulty implementing alternative coping strategies, *when under conditions of emotional arousal*, are also at risk.

The deficits outlined increase the likelihood of encountering difficulty thinking, planning, or implementing more functional coping approaches. With diminished resources, individuals may demonstrate a preference for quick, easily executable strategies such as self-injurious behaviours, to mitigate aversive emotional experiences. The theoretical account suggests that these strategies are likely to be pronounced in those high in impulsivity.

1.6.1.2 Maintenance factors

While experiential avoidance may modulate emotional response(s) and serve to offer initial relief, persistent adoption of an avoidance strategy paradoxically heightens distress and increases reliance on EA strategies. Thus, the Experiential Avoidance Model views engaging in self-injurious behaviour as a self-perpetuating cycle, exacerbated and maintained by four key factors: (i) the paradoxical effects of EA coping, (ii) a failure to extinguish the aversive emotional response, (iii) the reliance on rule-governed behaviour, and (iv) habituation to negative consequences.

Firstly, reliance on EA strategies paradoxically increases the probability of affect rebound (i.e., an attempt to suppress a thought/emotion paradoxically causing a rebound increase in frequency of that thought/emotion). The EAM postulates that this leads an individual to experience episodes of the avoided emotion at an increased frequency, and also intensity. Thus, the cycle repeats itself in a dynamic fashion. This notion is supported by empirical evidence which suggests that attempting to suppress unwanted thoughts increases the frequency of such thoughts. This effect is particularly pronounced under conditions of stress or when the individual is engaging in a concurrent effortful task (Abramowitz et al., 2001).

Secondly, an emotional response can be weakened via repeated exposure to the stimulus (that elicits a learned emotional response) in the absence of the feared outcome. Dependence on avoidance and escape strategies prevents this process from occurring. Therefore, chronic use of experiential avoidance strategies may prevent the extinction of unwanted emotion.

Thirdly, an individual may elect to act in adherence to a prescribed verbal rule; for example, '*If I cut, I feel better'.* This rule, which outlines a relationship between a specific behaviour and its consequence, may contribute to the explanation of persistence of NSSI; if an individual elects an action based solely on a verbal rule, flexibility in responding is markedly reduced. This inflexibility precludes an individual's understanding of, and ability to learn from, true contingencies in the environment. Chronic reliance on self-injurious behaviour reduces an individual's capacity to learn that, whilst aversive, the emotion avoided is not threatening and that overtime the aversive emotion will dissipate.

Finally, people who are chronically using these behaviours may become habituated to the negative consequences (that may otherwise constrain behaviour engagement). Therefore, over repeated trials, engaging in non-suicidal self-injury may become linked with fewer punishing consequences.

1.6.1.3 Evidence in support of the EAM

Empirical evidence supports the assertion that self-harm serves to reduce negative affect; self-injury is usually preceded by an acute aversive emotional response, and engaging in the behaviour is associated with a substantial reduction of negative affect (see Klonsky, 2007b for review).

A recent systematic review concluded that there is tentative support for the role of experiential avoidance in self-harm (Brereton & McGlinchey, 2020). Here, it is important to note that: (i) of the 17 papers included within the review, two were conducted as part of the doctoral work presented within this thesis (Nielsen et al., 2017b; Nielsen, Sayal, et al., 2016). This research is contained within Chapter 2 and Chapter 4 (and is not included within the Introduction Chapter), and (ii) the authors of the systematic review use definitions (e.g., of 'self-injury' and 'deliberate self-harm') which differ from those adopted in this thesis. There is a lack of clarity in the systematic review regarding operationalisation and, at times, terms appear conflated.

1.6.1.3.1 Non-suicidal self-injury and experiential avoidance

There is some evidence to suggest that experiential avoidance is associated with non-suicidal self-injury, across differing populations. Anderson and Crowther (2012) report that undergraduates with past-year NSSI ('current', *n* =

45) were significantly higher in experiential avoidance (as measured by the Acceptance & Action Questionnaire, AAQ) than those with no lifetime NSSI (*n* = 119). However, the 'current' self-injury group were not significantly different in levels of EA from those who had previously self-injured but had not done so in the last year ('past', *n* = 50). Additionally, and in line with the EAM, the study provides preliminary empirical evidence for a number of variables identified as salient in the maintenance of self-injury (including key moderators as outlined in EAM). Of note, individuals who had ever engaged in NSSI reported having significantly more intense emotional experiences than those who had never self-injured. They also reported reduced access to emotion regulation strategies, more difficulty identifying feelings, and increased thought suppression compared to individuals who never engaged in NSSI. Those who had engaged in NSSI in the last year showed significantly higher levels of non-acceptance of emotional experiences and impulse control difficulties (both facets of emotion dysregulation) when compared with those who had self-injured in the past, but not within the last 12 months.

Considering the frequency of NSSI engagement, Gratz and Roemer (2004) report that, in male undergraduates, elevated levels of emotional non-acceptance (as measured by the Difficulties in Emotion Regulation Scale, DERS) are related to an increased frequency of self-injurious behaviour. While a significant association was not observed in female undergraduates, none of the correlations between self-injury frequency and DERS subscales differed significantly across gender.

Anderson and colleagues (2018) report moderate associations between avoidance and NSSI frequency, in female undergraduates (*N* = 230). Two

indirect effects were observed between emotional distress and non-suicidal self-injury: (i) distress was associated with NSSI sequentially, via limited access to emotion regulation strategies and avoidance, and (ii) via avoidance only. Here, the latent variable 'avoidance' was a composite of thought suppression (as measured by White Bear Suppression Inventory, WBSI) – which was conceptualised as cognitive avoidance – and experiential avoidance (as measured by AAQ) – which was conceptualisation as affective avoidance.

Chapman and colleagues (2005) examined whether experiential avoidance mediates the relationship between Borderline Personality Disorder (BPD) traits and lifetime NSSI frequency, in a sample of female inmates (N = 105). Bivariate correlations indicated that NSSI frequency is positively correlated with thought suppression (as measured by the WBSI), but not experiential avoidance, as measured by the AAQ. Further, experiential avoidance did not mediate the relationship between BDP traits and NSSI frequency. Here, the construct 'experiential avoidance' comprised thought suppression (WBSI), experiential avoidance (AAQ), and five (COPE) coping subscales (denial, mental disengagement, behavioural disengagement, substance abuse, humour).

Howe-Martin and colleagues (2012) explored experiential avoidance in relation to both dichotomised lifetime *repetitive* self-injury history[11] and

[11] Here, repetitive self-injury was characterised as self-injury repeated more than five times, with no "clearly conveyed" suicidal intent (p. 810). Further, the behaviours included within this conceptualisation were not high lethality and resulting in no more than moderate injury. Behaviours that "were used solely for self-expression purposes" (e.g., body piercings in the absence of emotion regulation factors) were also excluded, as was NSSI enacted during psychosis or "during the self-injurious behavior sometimes exhibited by individuals with

lifetime frequency of engagement[12], in a school-based sample (*N* = 211, aged 13-18 years). Those who had a lifetime history of repetitive self-injury were significantly higher in thought suppression (as measured by the WBSI) and alexithymia (as measured by the Toronto Alexithymia Scale-20, TAS-20) than those without a lifetime history of repetitive non-suicidal self-injury. However, no between groups difference was observed on the Avoidance and Fusion Questionnaire (AFQ-Y). The AFQ-Y is designed as a measure of psychological inflexibility engendered by high levels of cognitive fusion – entanglement with the content of private events – experiential avoidance and inaction or ineffectiveness in the context of unwanted internal experiences. Lifetime NSSI frequency was positively correlated with AFQ-Y mean score, thought suppression and alexithymia. The patterns observed across the whole sample were consistent for females, but not males, in subgroup analyses.

1.6.1.3.2 Acceptance and Commitment Therapy (ACT) for self-harm

Principally targeting experiential avoidance – or escape – Acceptance and Commitment Therapy (ACT) aims to increase an individual's psychological flexibility: the ability to remain in contact more fully with the present moment (despite the potential presence of aversive thoughts, feeling or sensations) and to elect behaviour in a manner that is congruent with one's personal values and the situation.

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developmental disabilities" (p. 810). Mild to moderate physical injury was an inclusion criteria and overdose was excluded.

[12] Here, frequency was not calculated as a true count variable. Rather, frequency of engagement was ranked '0' ("never") to '5' ("more than 20"), across 17 NSSI behaviours, modified from the Deliberate Self-Harm Inventory (DSHI). 'Frequency' was determined by the maximum score endorsed in response to this item.

ACT is comprised of six core processes: (i) acceptance of uncomfortable private experiences; this may include, but is not limited to, thoughts, feelings, or physical sensations, (ii) cognitive defusion/distancing from one's own uncomfortable thoughts, (iii) being present; directing attention to the present and current experiences rather than focusing on the past or future, (iv) self-awareness in the present moment through the "observing self", (v) identification of personal values, and (vi) commitment to action in line with the identified values. The application of mindfulness skills, acceptance of distress, and defusion from distressing thoughts, feelings, or sensations may enhance an individual's capacity to live with the discomfort of severe emotional pain. However, trials that examine the efficacy of ACT in reducing non-suicidal self-injurious thoughts and behaviours, self-harmful thoughts and behaviours and suicidal thoughts (ideation) and behaviours are limited.

A recent systematic review (Tighe et al., 2018) of the published evidence identified five studies (1 mHealth Randomised Control Trial [RCT], two pre-post studies, two single-case studies) exploring the impact of ACT on self-harm (regardless of intent) and suicidal ideation. All trials reported reduction in suicidal ideation, and the case studies report a reduction in self-harm across the time course of the ACT intervention. However, the magnitude and statistical reliability of the stated reductions varied considerably: Tighe et al. (2017) reported a non-significant reduction of 30% in ideation scores, whilst Walser and colleagues (2015) reported a significant 20.5% reduction in the prevalence of suicidal ideation among participants at follow-up. Ducasse et al. (2014) reported significant reductions in all suicidal ideation measures at follow-up (1-week and 3-month follow-ups).

Standardised measures were not used across the studies, making comparisons more difficult. Furthermore, only two of the five studies included process measures – here, designed to capture acceptance and mindfulness. Where included, AAQ scores demonstrated a positive association with suicidal ideation; decreases in experiential avoidance scores were associated with a reduction in suicidal ideation across time (Walser et al., 2015) and reduction in suicidal ideation sub score (as measured with the Columbia-Suicide Severity Rating Scale [C-SSRS]) was positive correlated to the AAQ score. While, taken together, the systematic review provides some tentative support to the importance of experiential avoidance as a psychological variable involved in a self-harm and suicidal ideation, the limited nature of the research – both in breadth and depth – should be noted. When considering specifically the EAM it is pertinent to note that no ACT study focused on non-suicidal self-injury.

1.6.1.3.3 Most participants who self-injure report that they do so to regulate affect

The regulation of negative arousal states is the most frequently cited primary motivation for self-injury in both structured, self-report protocols and semi-structured, qualitative interviews (Edmondson et al., 2016; Gratz, 2003; Klonsky, 2009; Laye-Gindhu & Schonert-Reichl, 2005; Lloyd-Richardson et al., 2007; Nixon et al., 2002; Nock & Prinstein, 2004). This appears consistent across both hospital and community samples. For example, Klonsky (2009) interviewed 39 undergraduate students with a history of repeated non-suicidal self-cutting (≥ 5 lifetime episodes of self-cutting; 92% had a history of another NSSI behaviour in addition to self-cutting; 72% had engaged in NSSI in the year prior to participation). The majority of participants (85%) rated an affect

regulatory function, specifically the alleviation of negative affect ("to release emotional pressure that builds up inside of me"), as their primary driver for engaging in non-suicidal self-cutting. Similarly, in Nixon and colleagues' (2002) study of hospitalised adolescents (N = 42; 83.3% of whom engaged in NSSI >1/week), the two most commonly endorsed motivations for engagement in NSSI were affect regulatory in function: "to cope with feelings of depression" (83.3%) and "to release unbearable tension" (73.8%). Here, data were collected via chart review (of information recorded by the hospital) and self-report questionnaire. A systematic review of qualitative, self-report accounts of the non-suicidal functions of self-harm again confirms the primacy of affect regulatory functions, here described with "dealing with distress" (Edmondson et al., 2016).

A recent meta-analysis estimated the prevalence of different functions of non-suicidal self-injury (Taylor et al., 2018). Functions were initially categorised as intrapersonal or interpersonal, with further subcategories elaborated (see Figure 2). Intrapersonal functions (66-81%) – and especially those concerning escape or avoidance of negative affect (62-78%) – were most commonly reported by individuals who engage in NSSI. The perceived capacity for emotion regulation has also been indicated as playing a role in the cessation of NSSI (Kiekens et al., 2017). Further meta-analytic work, collating data from all community-based studies of adolescents from 1990-2015 (N = 597,548; across 41 countries), found that the most commonly endorsed reason for engaging in self-harm were affect regulatory: to gain relief from thoughts or feelings (Gillies et al., 2018).

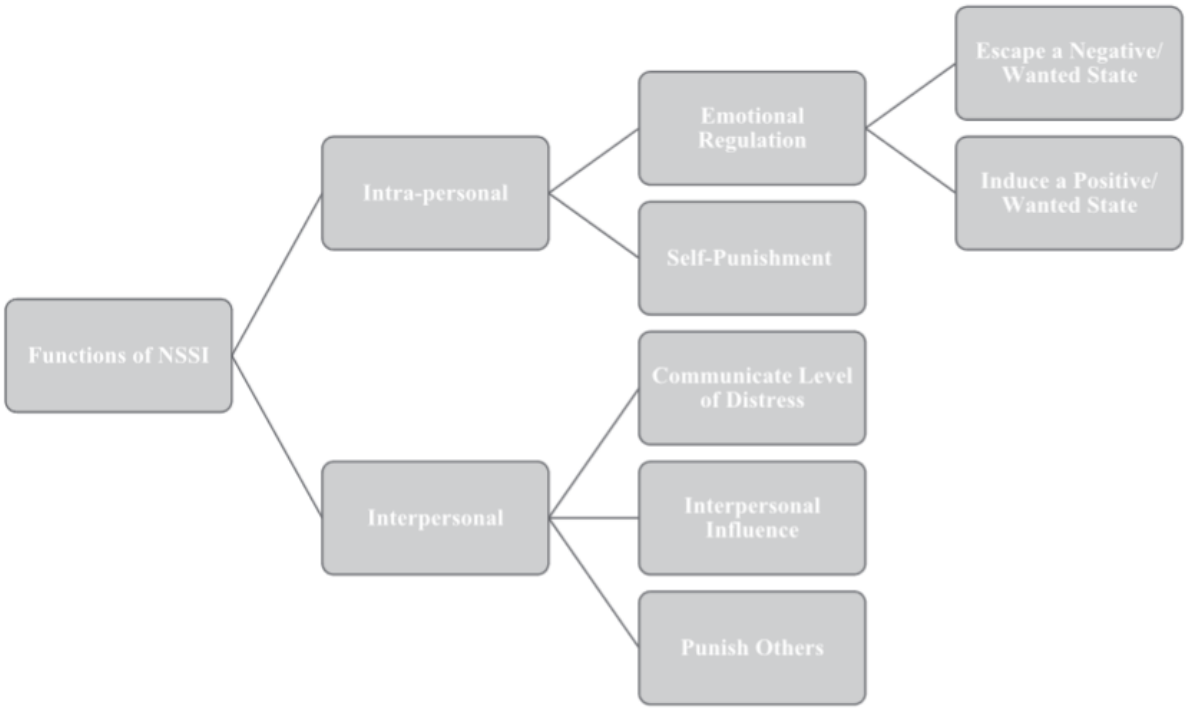


Figure 2. Categorisation of functions of non-suicidal self-injury (Taylor et al., 2018, p.760).

1.6.1.3.4 Most participants who self-injure report that they feel better afterwards

Klonsky (2009) interviewed young adults (N = 39, with a minimum lifetime history of five NSSI episodes of self-cutting) about their NSSI experience, including emotional experiences preceding and following self-injuring and the consequences of engaging in NSSI. Consistent with an emotion-regulatory function, participants reported that engaging in self-injury was associated with decreases in affective arousal and increases in affect valence. Specifically, prior to self-injury, the most frequently reported emotional states were feeling "overwhelmed" (85.0%), "sad" (82.0%), "hurt emotionally" (82.0%), "frustrated" (80%), and "anxious" (77%). Following NSSI engagement, the

most commonly endorsed states were “relieved” (77%), “angry at self” (77%) and “calm” (72%).

Comparison of affect ratings pre- and post-NSSI indicated that behaviour engagement resulted in a reduction in negative affect, rather than an increase in positive effect, therefore providing further evidence for negative, rather than positive, reinforcement in NSSI. Importantly, the magnitude of change in affect following NSSI behaviour engagement strongly predicted lifetime frequency of self-injury. This is consistent with research evidence indicating a positive relationship between the number of lifetime episodes of self-injury, and self-report ratings of feelings of calm and attentiveness following participants’ last episode of self-injury (Gordon et al., 2010). Taken together, these findings further support the notion of the centrality of negative reinforcement in the maintenance and cyclical re-engagement in self-injury.

In the latter part of Klonsky’s (2009) interview schedule, participants were presented with a range of possible consequences of self-injury and asked to rate how often this happened for them (“always”; “usually”; “sometimes”; “rarely”; “never”). No consequence received a median rating of “always”. Of the four consequences with a median rating of “usually”, two relate to internal experiences, specifically: (i) reclaiming a sense of control; “I feel more in control of myself”, and (ii) the reduction of negative affect; “I calm down”. The remaining two consequences rated as “usually” occurring relate to the physical consequences of NSSI. These items related to: (i) physical pain, and (ii) physical marks (e.g., scarring) as a consequence of NSSI. All of the next most highly rated consequences of NSSI pertained to either the management and alleviation of intense, aversive, emotional experiences (e.g., “anxiety is

reduced"), or the nature of the internal experience (e.g., "I experience an adrenaline rush").

Chapman and colleagues (2007) interviewed female inmates with differing self-harm histories about their experiences of emotionality prior to and following self-harm. The researchers interviewed women with and without diagnosed Borderline Personality Disorder. Self-harm experiences were categorised into non-suicidal self-injury, suicide attempts and "ambivalent suicide attempts". The most frequently reported emotional antecedent to non-suicidal self-injury and suicide attempt was anger (45.16% and 40.90%, respectively). Anger, guilt and sadness were endorsed equally as the most important emotions leading to ambivalent suicide attempts (30.00%). Relief was the most common emotional consequence of non-suicidal self-injury (25.80%), followed by sadness (12.90%). A divergent pattern was observed in suicide attempt; in attempts of ambivalent intent the primary emotional consequence was guilt (40%) followed by relief, which was endorsed by one fifth of respondents. No positive emotional consequences were reported by those who had survived suicide attempts (anger, 31.80%; guilt, 27%).

Here, it is important to note that: (i) participants could indicate *one* emotion prior to and following the incident. It may, therefore, be difficult to capture the nuances of complex dynamics and the potential magnitude of mixed or 'big' feelings, and (ii) participants were retrospectively recalling their experiences of their last episode (median period of recall = 3 years). While it can be argued that profound events may remain salient over time, equally memory biases may prevent accurate, fine-grained analysis and recall of distal

acts or differentiation of a given event where high frequency repetition has occurred (e.g., repeated non-suicidal self-injury).

Townsend and colleagues (2016) developed the Card Sort Task for Self-Harm (CaTS). Here, people can map – in order – the thoughts, feelings, events, supports and behaviours leading up to and following an episode of self-harm. The original CaTS contains 117 cards – derived from theoretical accounts of self-harm and suicidal behaviour and empirical research – with the addition of blank cards which a participant may complete for themselves, if their experience is not otherwise captured. Participants use as many or as few cards as needed to describe their experiences across a timeline of 6 months.

In a study of adolescents with a history of recent, repeated self-harm (*N* = 45, aged 13–21 years) which sought to compare first ever self-harm to most recent self-harm, aversive emotions were high frequency items (cards often chosen) (e.g., "I felt depressed and sad"; "I felt worthless"; "I hated myself"). Lag sequence analysis indicated that leading up to self-harm there is a pattern of intensive, aversive emotions. However, the only item that directly preceded self-harming was acting impulsively ("I did it on impulse without planning"). In the mapping of most recent self-harm, self-hate emerged as being immediately proximal to impulsivity, suggesting that this is an increasingly important emotion to consider as self-harm progresses. "I felt better after self-harm" was a high frequency card *only* in the first ever episode card sorts. Worryingly, in the most recent episode sorts, perceived burdensomeness ("I felt like a burden on people"), hopelessness ("I felt very hopeless about the future"), agitation ("I was very agitated and restless") and suicidality ("I wanted to die") emerge as highly endorsed cards (Townsend et al., 2016).

In addition to self-injurious *behaviours* serving an affect or emotion-regulatory function, there is some indication that *thinking* about self-harm (ideation) may also alter emotional experience. Crane and colleagues (2014) indicated that a minority of participants (15%) reported feelings of comfort as a result of suicidal ideation.

1.6.1.3.5 'Real-time' studies suggest that negative affect precedes self-injury and that affect improves following self-injury

While self-injurious thoughts and behaviours are common, they rarely occur within laboratory (or arguably clinical) settings. The accurate investigation of these transient experiences may, therefore, be hampered by over-reliance on retrospective recall (often over long time periods) and self-report of experiences (e.g., affect; cognition; behaviour; symptomatology). This may be particularly pronounced when experiences are aggregated. A number of suggestions have been made to try to counter these limitations. These include the use of: (i) 'real time' assessment modalities, (ii) laboratory self-injury proxies or self-injury imagery (see Section 1.6.1.3.6 for discussion) and, (iii) objective methods of assessing associations (see Section 1.6.1.3.6 for discussion) in research protocols.

Ecological Momentary Assessment (EMA)[13] – the repeated sampling of an individual's momentary (current) experiences, in their naturalistic environment – allows *real time* assessment of *real world* non-suicidal self-injurious or self-harmful thoughts and behaviours. That is to say, these methodologies elucidate experiential phenomenology, facilitating insight into

[13] EMA is sometimes referred to as Experience Sampling.

cognitive, affective and behavioural responses – and the situational influences of these – as they are experienced, in day-to-day life (Bolger et al., 2003). Such methods hold particular promise in suicidology, given that, as well as maximising ecological validity, increasing reliability (through repeated assessment) and minimising recall bias, EMA is particularly well-suited to the investigations of dynamic and/or micro processes (Ebner-Priemer et al., 2006; Nock et al., 2009; Shiffman et al., 2008).

Nock, Prinstein and Sterba (2009) provided the preliminary exploration of the phenomenology of NSSI using EMA (N = 30 community-based young people with past fortnight self-injurious thoughts). This landmark study gave the first, detailed, real-time assessment of the nature of thoughts and the feelings, contexts (e.g., who they were with and what they were doing?) and behaviours (e.g., what did people do when they didn't act upon their thoughts of harming?) associated with NSSI thoughts and behaviour, as well as the perceived functions of self-injury. Participants completed twice-daily, signal-contingent entries (midday, end of day), as well as event-contingent entries (i.e., in addition to being asked to complete a series of measures in response to the personal digital assistants [PDA] alerts, participants were asked to self-initiate entry completion should they experience a self-injurious thought or engage in self-injury).

Descriptive statistics indicated that NSSI thoughts were most commonly *preceded* by "worry" (36.5% of NSSI thoughts), "feeling pressure" (31.7%), "having a bad memory" (26.0%) or seeing a reminder (21.2%) and occurred frequently in the context of negative emotions (e.g., "angry at self" [48.5%]; "overwhelmed" [45.6%]; "self-hatred" [42.7%]; "feeling

sad/worthless" [39.8%]). Taken together, this suggests that self-injurious thoughts and behaviours may be used to escape negative cognitive – as well as affective – states, suggesting the role of experiential, not merely emotional, avoidance. While this is in line with the EAM framework, it is interesting to note that these aversive mood states did not consistently predict engaging in NSSI behaviours; hierarchical linear modelling (HLM) analyses indicate that those who had thoughts of injuring were more likely to engage in NSSI when feeling "rejected", or experiencing anger ("anger toward oneself" and "anger towards another"), "self-hatred" or when feeling "numb/nothing". Counterintuitively, the odds of engaging in NSSI decreased when participants reported feeling "sad/worthless".

Consistent with research presented in Section 1.6.1.3.3, descriptive exploration of the real time data indicated that participants most frequently endorsed engaging in NSSI for the purposes of intrapersonal-negative reinforcement (64.7% of NSSI episodes). Intrapersonal-positive (24.5%), interpersonal-negative (14.7%), and interpersonal-positive (3.9%) reinforcement functions were much less commonly endorsed.

While Nock and colleagues' (2009) EMA study provides important initial real time data, exploring the dynamic interplay between affect and non-suicidal self-injurious thoughts and behaviours, the relatively non-intensive signalling schedule precludes detailed exploration of temporal dynamics; for example, it is difficult to conclude whether the affect reported as experienced during an episode of self-injury is a precipitant, or consequence, of behaviour engagement (whether it is experienced immediately prior to, during, immediately following, or later following an act of injuring).

To counter this limitation, Armey and colleagues (2011) used a more intensive sampling regime to examine in vivo changes in affect associated with NSSI. Across a 7-day period, participants (N = 36, undergraduates with a history of NSSI) were required to respond to six signals throughout the day (10:00 am-10:00 pm), as well as complete an entry should they experience a NSSI thought or behaviour (event-contingent sampling). Results indicated that those who engaged in self-injurious behaviours reported increases in acute aversive affect prior to an episode of self-harm. This negative affect peaked during the self-injury and dissipated (gradually) following the behaviour engagement. The changes in negative affect proceeding non-suicidal self-injury were typically gradual and detectable for a number of hours prior to behaviour engagement. Results provide clear support for a negative reinforcement function of NSSI – a central theoretical underpinning of the EAM. Importantly, the pattern of affect change observed in the context of NSSI was detected *only* during self-injury episodes and was entirely absent in participants who reported no self-injury.

Muehlenkamp and colleagues (2009) provide further real time data suggesting that engaging in NSSI serves an affect-regulatory function. Again using EMA methodology, the study explored affective states preceeding and proceding self-injurious behaviours, in a large community sample of individuals with Bulimia Nervosa (N = 131). Consistent with the overall pattern of affect outlined above, results indicate that there is a significant increase in negative affect – accompanied by a decrease in positive affect – prior to engaging in self-injurious behaviour. Following self-injury, positive affect significantly increased. However, negative affect remained unchanged.

In contrast to the research presented above, this may suggest a positive, rather than negative, reinforcement schedule, within this sample.

Consistent with the theoretical account delineated in the EAM, the data presented by Muehlenkamp and colleagues (2009) also provide empirical support to the notion that behaviours with common functionality (here, eating disorder symptomatology and non-suicidal self-injurious behaviours) are often interchangeable. There remains an important, as yet unanswered, question as to what determines which behaviour is selected in response to which stressful situation.

In line with the research presented above, more recent EMA data also suggest that rejection and criticism predict non-suicidal self-injurious urges (*N* = 62, young adult women) (Victor et al., 2019) and that anger is associated with concurrent self-harm ideation (but not subsequent ideation at T+1) (*N* = 21, male inmates aged 18-65 years) (Humber et al., 2013). Guilt may also be an important emotional precedent; results of Lear and colleagues' (2019) 2-week daily diary study indicate that guilt predicted self-injury urge. Here, this was the only negative emotion to predict self-injurious behaviour. Interestingly, self-criticism indirectly predicted urge to self-injure via thoughts about self-punishment (*N* = 48, undergraduates with past year self-injury).

1.6.1.3.6 Laboratory studies show a reduction in negative affect following self-injury proxy and implicit associations between self-injury and relief

An alternative approach to studying affective states in self-injury is to use laboratory-based analogues which allow for direct assessment (e.g., of

physiological and subjective affective response) via self-injury proxy/ies (Ammerman et al., 2018; Hamza & Willoughby, 2015; Russ et al., 1992). This aims to counter some frequently cited limitations of retrospective, self-report data including difficulties in making inferences regarding directionality of effects, difficulties in accurate distal self-reporting on complex underpinning emotional dynamics, and consideration that cognitive reinterpretation of experiences may occur (particularly upon the resolution and cessation of self-harming) (Hamza & Willoughby, 2015). Laboratory-based self-injury analogues fall into three categories: (i) non-suicidal self-injury related stimuli (e.g., injury-related pictures; guided imagery; Implicit Association Tasks, Go-No-Go tasks), (ii) self-selected, self-administered pain stimuli (e.g., cold; shock), and (iii) experimenter-administered pain stimuli (e.g., cold; heat; shock; pressure; blade; incisional). See Ammerman and colleagues (2018) and Hamza and Willoughby (2015) for recent reviews on the assessment of non-suicidal self-injury in laboratory settings and the evidence regarding non-suicidal self-injury and affect regulation from experimental and ecological momentary assessment studies (including diary studies).

1.6.1.3.6.1 Non-suicidal self-injury related stimuli

1.6.1.3.6.1.1 Injury-related pictures

Non-suicidal self-injury related image stimuli have been employed in a laboratory setting in an effort to better understand experiences around self-injury. Images depict various stages of NSSI from before – such as photos of blades held against the skin – to after – such as photos of implied, self-inflicted wounds. The self-injury related images are typically dispersed within positive,

(and) negative (and neutral) valanced images taken from the International Affective Picture System (IAPS: Lang et al., 2008), with protocols predominantly focused on inhibitory control in reactions to images. Those with a history of non-suicidal self-injury demonstrate poor inhibition to negatively valanced IAPS images and enhanced inhibition to NSSI-specific images (six images of sharp objects which may be used to self-injure, e.g., razor blades, scissors, and six images of bloodied, lacerated forearms. These later images were genuine and sourced online). In contrast, those without a history of non-suicidal self-injury display impaired inhibition to self-injury related images. This suggests that those who self-injure may have both impaired inhibition of negative emotional arousal and a conditioned response associating self-injury with relief or reward (Allen & Hooley, 2015). Neurophysiological correlates have been determined which may indicate that self-injury functions to regulate emotions and this process may be outside of a person's direct awareness (Plener et al., 2012). The ethical implications of such studies remain in debate, not least given empirical knowledge regarding acquired capability, habituation to negative consequences, and the role of (mental) imagery.

1.6.1.3.6.1.2 Guided imagery

An alternative approach to using NSSI-related content in laboratory settings, specifically NSSI-related images, is guided imagery. Guided imagery has been used to explore participants' responses to salient or imagined incidents of self-injury. Here, personalised scripts are created using narratives either of the most recent and vivid instance of non-suicidal self-injury that the participant could recall or an imagined incident of self-injury. The descriptions consist of four component parts: (i) the setting, referring to the background of the incident, the

scene and behaviours at the onset of the event, (ii) the approach, referring to thoughts, feeling, events and behaviours immediately prior to the incident, (iii) the incident (i.e., NSSI). Here, participants are required to provide a detailed account of what happened during the event itself, and (iv) the consequences, referring to reactions and responses to the incident depicted. Guided imagery scripting holds promise as a methodology which permits the examination of physiological, affective and neuropsychological responses to all stages of an NSSI incident, in a paradigm which is generally held as being 'low risk' (Ammerman et al., 2018).

Across studies, participants with a history of non-suicidal self-injury report increased arousal leading up to an incident of self-injury followed by decreased negative affect and decreased physiological arousal (skin conductance; heart rate; finger blood volume; respiration; finger pulse amplitude) when listening to their script recalling the moment(s) of self-injury and the moments thereafter (Brain et al., 1998; Haines et al., 1995; Welch et al., 2008). More specifically, while self-reported emotion changes typically occurred *after* the incident of NSSI (the consequences), physiological changes were observable *while recalling* the act of self-injury (the incident) (Brain et al., 1998; Haines et al., 1995; Welch et al., 2008). Neuropsychological differences amongst those with BPD and a history of NSSI are observed between different scripting stages (e.g., preparation versus enactment) (Kraus et al., 2010).

Haines and colleagues (1995) used imagined injury imagery (non-suicidal self-injury; accidental injury; an aggressive interaction; neutral experiences) to investigate affective response in male prisoners with a history

non-suicidal self-injury, male prisoners with no self-injury history, and male non-prisoner controls. The research protocol permitted exploration of whether the emotional responses observed in response to self-injury are unique, or common across differing mechanisms of injury. Participants with self-injury histories exhibited increased tension preceding the self-injury imagery, with a rapid decrease in arousal and negative affect in response to the imagery. This pattern was observed in response to the self-injury imagery only (not control images of accidental imagery, angered interaction, or low arousal neutral events) and has been replicated in non-forensic populations, in both males and females (Brain et al., 1998).

While the dynamic pattern of affect reported by Haines and colleagues (1995), Welch and colleagues (2008), and Brain and colleagues (1998) is consistent with: (i) theoretical accounts, and (ii) that which is self-reported in retrospective, cross-sectional research and real time, EMA methodologies, the equivalence of the imagery has been challenged, with some suggestion that the self-injury imagery is more emotionally arousing than the control imagery. Where the capacity for mental imagery has not been assessed, some findings have been less compelling (Hamza & Willoughby, 2015; Welch et al., 2008). Questions regarding the suitability of a methodology requiring direct self-expression and verbalisation of difficult experiences and complex emotional processes, for a population that may struggle to articulate their experiences, have also been levelled (Hamza & Willoughby, 2015). Furthermore, the efficacy of using imagery as a self-injury proxy has been questioned, given the integral acute physical component of many methods of self-injury.

1.6.1.3.6.1.3 Implicit Association Tasks

Despite the growing consensus that: (i) non-suicidal self-injury serves an affect-regulatory function, and (ii) negative reinforcement is an important factor in the maintenance of behaviour engagement, the extant literature most commonly relies exclusively on self-report measures. Accurate self-report is limited by both an individual's ability to access and willingness to disclose the requested information (e.g., how they were feeling before and following an episode of self-injury). Here, it is pertinent that the precipitating and consequential experiences associated with self-injurious thoughts and behaviour may well occur outside of individual awareness (Nock et al., 2009).

Implicit Association Tests (IAT) (Greenwald et al., 1998) offer one potential means of countering this limitation, by assessing automatic associations, outside of conscious control. The computer-based methodology seeks to determine the strength of associations between concepts (e.g., LGBTQ+ people) and evaluations or stereotypes. In traditional IAT procedures, participants are required to sort four categories of stimuli (words or images) into two superordinate categories, as quickly as possible. The superordinate categories appear in the top left- and right- hand corners of the computer display and the participant must press the corresponding keyboard keys (left – right) to sort the stimuli, which are presented individually in the centre of the screen. Participants then complete the inverse task (e.g., if they were previously pairing "life" – "me" and "death" – "not me" in the analogous task "life" – "not me" and "death" – "me" are paired). IAT *D* scores are then calculated – these represent reaction time difference scores between the critical category pairing blocks (e.g., between "death" and "me"), divided by the

standard deviations across all blocks (standard IAT procedures are comprised of seven blocks of stimuli sorting and pairing, see Greenwald et al., 2003 for further discussion). The estimation of automatic associations is based upon the assumption that congruent trials (where related items share a common response key, belonging to the same superordinate category) are easier to respond to and therefore have lower reaction times.

Applied to suicidology, IATs have typically been employed to explore associations between death, suicide, non-suicidal self-injury (e.g., "cutting") and 'self' (e.g., "me"; "not me"). Together, these studies suggest that self-harm IATs provide an objective marker which: (i) can distinguish those with NSSI/suicide attempt histories from those with no history of self-harm, (ii) are sensitive to the recency and (medical) severity of behaviour engagement, and (iii) improve prospective prediction of self-harm, beyond other well-established predictors (Cha et al., 2016; Glenn et al., 2016; Glenn et al., 2017; Nock & Banaji, 2007b, 2007a; Nock et al., 2010; Randall et al., 2013).

Gratz and colleagues (2016) developed a novel IAT in order to assess the strength of association between self-injury and *emotional* relief. Results revealed stronger self-injury-relief associations in those with (n = 113) versus without (n = 135) recent, repeated self-injury. This association was particularly marked in those participants with Borderline Personality Disorder and a history of self-injury (compared to those with a history of self-injury in the absence of BPD). In line with the Experiential Avoidance Model, the magnitude of the observed self-injury-relief association was positively associated with the frequency of self-injury and versatility in method (both retrospectively with

lifetime history and prospectively at 6-month follow-up), as well as emotion dysregulation and experiential avoidance.

When considering methodology – specifically the validity of self-report, from which much of the extant literature is based – it is pertinent to note that self-injury-relief association and self-reported emotion relief motives were positively correlated. Gratz and colleagues (2016) point to this demonstrating the construct validity of the IAT. Arguably, this equally demonstrates the appropriateness of self-report assessment, especially given the overall consistency of findings regarding an emotion regulatory function across studies employing differing research methodologies.

1.6.1.3.6.1.4 Go-No-Go tasks

An alternative task which aims to tap into implicit associations is the Go-No-Go Association Task (GNAT). Knowles and Townsend (2012) utilised such a task to explore self-harm functions. People with a history of self-harm endorsed stronger implicit "self-harm" – "arousal" associations. Additionally, internal or automatic functions (e.g., such as escape – "to escape" – and emotion regulation – "to get relief") were significantly related to an implicit "self-harm" – "sedation" association, suggesting that those who self-harm for emotional relief may experience self-harm as calming.

1.6.1.3.6.2 Pain stimuli

To counter limitations of ecological validity, specifically concerning physicality, alternative self-injury proxies have been explored which aim to replicate something of the pain (or sensations) which is integral to many

methods of self-injury. In an early study, Russ and colleagues (1992) used a Cold Pressor Task (CPT), a self-injury proxy aiming to replicate the acute and localised sensation in self-cutting behaviours. Here too, results support an emotion-regulatory function of NSSI; participants (N = 22 admitted inpatients, diagnosed with BPD and with a lifetime history of ≥ 3 episodes of NSSI) reported significant reductions in negative affect ("depression", "anxiety", "anger", "confusion") following the self-injury proxy. However, inferences of causality preclude conclusion as the methodology did not employ a control group. Bresin and Gordon (2013) compared painful and non-painful stimulation (here, heat stimulation). University students with a history of self-injury showed greater decreases in negative affect when exposed to painful trials, compared to non-painful trials. However, those with a history of self-injury did not demonstrate a greater magnitude of effect (decrease in negative affect) for painful or non-painful trials, compared to those with no history of non-suicidal self-injury.

Emotion regulation – specifically relief of negative affect – following pain stimulation (cold; shock; pressure) has been explored in different mood states. Using a pressure pain paradigm, Schoenleber (2014) demonstrated that those with a history of self-injury reported reduced negative affect after the painful self-injury proxy. Both those with and without a history of non-suicidal self-injury reported reductions in the emotion 'shame'. Bastian and colleagues (2011) instructed participants to write about either "a time when they rejected or socially excluded another person" (pain; no-pain) or "an everyday interaction [they] had with another person yesterday" (control) (p. 334). Following the mood induction, participants completed either a cold pressor

(pain; control) or no-pain, warm water equivalence task (no pain). Those who were in the aversive condition (who wrote about a time they had behaved unethically) demonstrated a reduction in guilt across the experiment; of note, the magnitude of change was more than twice as large in the pain condition. Other negative emotions, as measured by the Positive and Negative Affect Scale (PANAS), did not demonstrate a time x condition interaction; there was no statistically significant reduction across the experiment. Further experimental work highlights the importance of guilt; Inbar and colleagues (2013) demonstrated that participants who were able to self-select shock levels opted for stronger shock in the guilt condition than sad or neutral conditions. Greater relief was also experienced from feelings of guilt, following the application of the stronger shocks.

It is important to note that in the Bastian and colleagues (2011) and Inbar and colleagues (2013) studies, people were not selected for, nor screened for, self-injury history. Evidence from general population samples suggests a potential emotional dampening effect of pain, with decreases in both negative and positive affect following (temperature; pressure) pain, and indicates the moderating effect of emotional reactivity; those who are higher in emotional reactivity experience higher levels of negative affect and larger decreases in negative affect following administration of pain stimuli than those low in emotional reactivity (Bresin et al., 2010) . Self-criticism has also been highlighted as important in understanding the relationship between pain and mood improvement; being high in self-criticism is related to increased mood improvements during pain (Fox et al., 2019, 2017).

Weinberg and Klonsky (2012) investigated arousal reductions following anger mood induction, using (mild and high) electric shocks. This was selected as a sensation proxy for NSSI, given that the localised, sharp pain is arguably similar to that induced via self-cutting. Contrary to the hypothesis, experiencing high shock did not result in enhanced arousal reductions, compared to mild shock, in those with self-injury histories (n = 39). However, within the high shock proxy, more intense self-inflicted pain (high voltage) facilitated the anticipated reductions of negative arousal, provided that the self-report pain was not too aversive; those who can inflict the most objective pain, with the least subjective cost, receive the greatest benefit, in terms of reduction in negative affect. Viewed through the lens of the EAM, this could be interpreted as evidence to support the proposed role of habituation to negative consequences as a maintenance factor underpinning cyclical re-engagement in NSSI behaviours. Of note, the reductions in induced negative affect observed in the self-injury group were greater than the control group (n = 33) experienced.

There is some evidence to suggest that women (undergraduate students not screened for self-injury history) expecting to experience a high pain condition (shock) report higher levels of dissociation than men, but only following the (self-) administration of the painful stimuli; this has been interpreted to indicate that a mild dissociative state may contribute to an explanation of relief after pain (Bracken et al., 2008).

The self-selected nature of pain may be an important component – an experiment comparing self-administered and experimenter-administered (adapted) cold pressor pain found that both those with and without a history of

non-suicidal self-injury reported that experimenter-administered pain (cold) was *more* painful than equivalent, self-administered (cold) pain. However, those with a history of non-suicidal self-injury reported *greater* relief than those without NSSI for the self-administered cold (Osuch et al., 2014). Self-selected and administered pain is arguably more closely analogous to the experience of NSSI.

In addition to temperature, pressure and shock pain stimuli, some researchers have employed incisional paradigms to explore non-suicidal self-injury. Using a stress induction, followed by an experimenter-administered, standardised surgical incision procedure (to provide the self-injury proxy) (Kawamata et al., 2002; Pogatzki-Zahn, Wagner et al., 2010) researchers have explored the effect of direct tissue damage on emotion. There was support for both short- and long- term, non-momentary, effects of incisional pain/tissue damage on emotion regulation measured both objectively (heart rate) and subjectively (aversive tension). In those with no history of non-suicidal self-injury, the incision was followed by a short-term increase in aversive tension, whereas negative affect and heart rate decreased in the group with BPD after the incision was made (Reitz et al., 2012). Neurophysiological correlates have been identified (Reitz et al., 2015).

Researchers have sought to develop and trial a novel paradigm using a blade stimulus in the absence of tissue damage (Shabes et al., 2016); this may counter some of the ethical concerns which may otherwise be levelled at this work. There is some suggestion that the magnitude of reduction in aversive affect is equivalent across tissue-injuring (incisional) and non-injuring stimuli of the same pain intensity. This suggests it is the pain perception, rather than

the mechanism of injury, that is central in emotional relief (Baumgaertner et al., 2019).

Neuropsychological (neuroimaging) identified patterns of activation which may indicate increased cognitive regulation and downregulation of emotions, amongst those with a history of self-injury, in response to painful heat stimuli (Niedtfeld et al., 2010; Schmahl et al., 2006). Additionally, work has sought to directly assess psychophysiological responding. Franklin and colleagues (2010, 2013) examined physiological responding to pain in undergraduate students with and without histories of NSSI. Results indicate that both those with and without self-injury histories demonstrate reduced startle responses (i.e., decreased negative emotions) following the administration of pain stimuli (CPT), suggesting decreased negative affect following pain. However, only participants with a history of NSSI demonstrated increased pre-pulse inhibition to pain (i.e., increased cognitive functioning). Unusually, self-reported indicators of subjective distress increased after the pain induction. This appears inconsistent with the physiological outcomes (Franklin et al., 2010). Franklin and colleagues' (2013) work explored affective relief within a pain-offset paradigm. Results revealed that, in undergraduate students, pain offset concurrently increases positive affect (measured via startle postauricular reactivity) and decreased negative affect (measured via startle eyeblink reactivity).

Taken together, these laboratory-based studies using non-suicidal self-injury pain proxies support the assertion that engagement in self-injury serves an affect regulatory function; both those with and without histories of non-suicidal self-injury experience a reduction in negative affect after the

administration of painful proxies (see Hamza & Willoughby, 2015 for review). The inclusion of both painful and non-painful trials within some research protocols permits the assessment of whether changes in affective state occur exclusively in response to pain or, alternatively, whether the effects are non-specific and produced by a range of tactile stimulation; those with a history of self-injury demonstrate greater declines in aversive emotional responses following painful, rather than non-painful, stimulation (see Hamza & Willoughby, 2015 for review).

However, the field is not exempt from limitations. The samples included within the studies are often small and predominantly female. The recruitment of participants is often restricted to introductory university undergraduate course members or participants from clinical populations (most often with a diagnosis of BPD) (Hamza & Willoughby, 2015). These factors may limit the generalisability of findings. Some work (particular CPT studies) is restricted to those with a history of pain analgesia in self-injury, which may represent a specific subclass of self-injury experience (see Ammerman et al., 2018 for discussion). The ecological validity of pain-based, self-injury analogies has arguably been increased with the advent of self-selected and self-administered (as opposed to researcher-administered) pain protocols; allowing participants to choose, and/or initiate, the painful experience is better analogous to the experience of self-injuring (Ammerman et al., 2018; Bresin et al., 2013). However, the extent to which some pain procedures (e.g., shock; thermal pain) produce similar sensations to self-injury has been questioned (Franklin et al., 2010).

1.6.1.3.7 Research supports components identified as contributing to the cyclical nature of self-injury - maintenance factors

In addition to evidence supporting the role of negative reinforcement (see Section 1.6.1.3.3 – 1.6.1.3.6 for discussion) and paradoxical effects of thought suppression (Abramowitz et al., 2001; Victor, Glenn, & Klonsky, 2012), research indicates that there is a negative correlation between the number of episodes of self-injury and self-reported fear and distress in relation to the most recent episode (Gordon et al., 2010). This is in line with the Experiential Avoidance Model's assertion that habituation to the negative factors that may normally constrain behaviour engagement may be eroded when self-injury is repetitively enacted, and that this habituation may provide a partial explanation of cyclical re-engagement.

Further support for the notion of habituation to negative consequences can be taken from research into the relationship between NSSI and suicide attempts (Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006), not least evidence which suggests that longer NSSI histories and greater versatility in method of self-injury are positively associated with suicide attempt rates (Stanley et al., 2001); NSSI may also serve to accustom an individual to the physical and emotional consequences of harming (e.g., pain), as well as the act of self-injury itself, thereby increasing the future risk of death by suicide.

1.6.1.4 Scope of the EAM

The EAM provides a theoretical, and potentially clinically useful, framework to understand the factors that control engagement (and re-engagement) in self-injurious behaviours. A number of testable hypotheses can be generated from

the model. However, while the EAM outlines specific predictions about NSSI, the conceptual account focuses exclusively on *non-suicidal* self-injury; "self-injurious behavior that occurs in the absence of any intent to die" (Chapman et al., 2006, p. 372), given evidence of "differences in the functions" of non-suicidal self-injury and suicidal behaviours (SB) (p. 373).

Furthermore, while designed to address self-injury at a general level, the EAM excludes generalisation to the severe and often repetitive self-injurious behaviours displayed by some individuals with cognitive and/or developmental disability and also individuals experiencing psychosis.

1.6.2 Experiential avoidance and suicidal intent

Suicidal behaviours are strongly related to psychological distress (Ellis & Rufino, 2016; Williams & Pollock, 2000, 2001). Notions of avoidance and escape motives, related to this distress, are established in suicide science. Indeed, depiction of suicidality as an expression of avoidance is arguably congruent with concepts of suicide as escape from negative self-evaluation (Baumeister, 1990), conceptualisation of "egression"—the ultimate escape (Shneidman, 1998), and the escape drive outlined in the Cry of Pain model (Williams & Pollock, 2001).

Research suggests that appraisals of an aversive internal experience as both: (i) unbearable, and (ii) needing to be extinguished are most relevant to suicidal behaviour, rather than the distress per se (Ellis & Rufino, 2016). Indeed, some have argued for the centrality of avoidance in explaining the nature of suicidality and the transition from distress to desperation (Hendin et

al., 2004). Moreover, 'unwillingness' or an inability to tolerate distress may be associated with suicidal urgency (Hendin et al., 2004).

1.7 Coping

The formal conceptualisation of the construct of 'coping' was developed in the 1960s and 1970s, with the delineation echoing a burgeoning interest in understanding stress. These definitions can be considered as a narrowing or refinement of a more generic psychoanalytic interest in ego-defences (means by which people deal with threats to psychological integrity) (Lazarus, 1993).

Both coping *responses* and coping *strategies* refer to intentional coping efforts, when faced with a stressor (Rudolph et al., 1995). Here, coping reflects the manner in which an individual approaches and responds to the stimuli (Karekla & Panayiotou, 2011) and may be defined as "cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding" an individual's resources (Lazarus & Folkman, 1984, p. 141)[14].

Broadly, two contrasting approaches to considering coping prevail: dispositional 'styles' accounts – which view coping as a trait-like personality characteristic – and 'process' accounts – which emphasise context and can accommodate notions of change over time.

[14] While this definition is widely adopted, it should be noted that this is a process definition of coping and therefore incorporates temporal and situational dynamics. Indeed, in their fundamental definition, Lazarus and Folkman emphasis that coping is continually changing.

1.7.1 Coping style – trait models

Early accounts of coping derived hierarchies from developmental psychoanalytic formulation, ranking defences (responses) as more or less adaptive (Haan, 1969; Menninger, 1954; Vaillant, 1977). Here 'adaptive' refers to being considered less regressed and more healthy. For example, Haan (1969) theorised a tripartite hierarchy of ego-functioning, delineating: (i) coping, (ii) defence, and (iii) ego-failure. Coping was conceptualised as the developmentally advanced process of adaptation and, accordingly, the healthiest. Secondary level 'defence' was viewed as a neurotic process. Finally, ego-failure was viewed as the most severely regressed response (Lazarus, 1993).

Emerging from these theoretical perspectives, trait models group behaviours and cognitions with a common mode of action into coping *styles.* (Ferguson & Cox, 1997). Having identified coping styles, researchers then make *a posteriori* inferences concerning coping functionality (e.g., repression-sensitisation); examination of these styles affords a structural account of coping. Trait-based, style accounts of coping emphasise intrapersonal, psychodynamic factors. These personality dispositions are considered to transcend situational dynamics; people develop habitual ways of dealing with difficult situations that they face, and these habitual responses or coping styles affect later reactions in novel stressful situations. Consequently, external, environmental situations are not of primary concern in coping style account.

1.7.1.1 Criticisms of trait models of coping

Critics of style accounts argue that such approaches result in overbroad representations, typically providing a single dichotomy or continuum upon which all coping lies (e.g., repression-sensitisation). The resultant identified style provides little indication of the specific strategies employed by an individual and may be too restrictive to adequately describe complex adaptation struggles (Lazarus, 1993). Moreover, intra-individual variation cannot be captured; while proponents of style accounts posit that these personality orientations predict responding to stressors across both context and time, research evidence questions such dispositional conceptualisations (Compas et al., 1988; Folkman & Lazarus, 1985; Folkman, Lazarus, Dunkel-Schetter, et al., 1986; Folkman, Lazarus, Gruen, et al., 1986; Tobin et al., 1989).

What an individual does in order to cope – their coping response – appears contingent upon context. This will change over time, both as a function of external (e.g., the threat itself may change) and interpersonal factors (e.g., what is attended to). Indeed, flexibility and exploring intra-individual variability in responding to difficult situations may be the hallmark of effective coping and adaptation (Compas et al., 1988).

1.7.2 Coping process – functional models

'Process perspectives' encompass notions of change, defining coping as *evolving* behavioural and cognitive actions to deal with both the internal and situational demands an individual encounters; accounts recognise the importance of the adaptational context out of which coping response is

generated. Consequently, process accounts consider the person, environment and relational meaning between them. Here, coping effort is considered as independent of the outcome; the use of the term 'coping' is not contingent upon the perceived adaptiveness of the process. Indeed, the term coping is used regardless of whether the response is successful or unsuccessful, adaptive or non-adaptive, consolidated, fluid, or unstable (Lazarus, 1993).

Process accounts of coping are distinguishable from coping style accounts by a shift in emphasis from what the individual does**,** to what these behavioural and/or cognitive efforts do (psychologically) for that individual (Cox & Ferguson, 1991; Ferguson & Cox, 1997) – the coping *function*.

1.7.2.1 Transactionally defined functional dimensions of coping

In 'principles of the process approach', Lazarus (1993) outlines that, in the assessment of coping, measurement should capture an individual's coping response to (a) specified stressful encounter(s), with inference regarding *how* the individual is coping being made by the researcher. Ferguson and Cox (1997) note that typically this *a posteriori* functional grouping is based upon exploratory factor analysis (EFA) of coping responses. Therefore, these process accounts do, in essence, provide a structural analysis, despite claiming to describe functionality. In setting out the transactionally defined Functional Dimensions of Coping scale (FDC), Ferguson and Cox highlight the privileged access of an individual. That is to say, only the person themselves can have an accurate understanding as to their motivations (the whys) and expectations of a coping response (what they thought they would achieve). Consequently, *a posteriori* inference is problematic.

Empirical evidence further highlights the concerns with inferring function. Firstly, coping of a similar style may be functionally different; social support seeking may be categorised as adaptive (e.g., if considered to serve problem-solving functions or facilitate approach and reappraisal) or maladaptive (e.g., if considered functionally avoidant) (Karekla & Panayiotou, 2011). Indeed, researchers may have difficulty grouping coping styles into functional codings or categories (Jalowiec et al., 1984). Further, one coping strategy can serve more than one coping function (Ferguson & Cox, 1997).

Therefore, if the functions of a given strategy – an item on a questionnaire – are contingent, in part, upon an individual's perceptions of that item (which may serve more than one coping function), then it would be unlikely that EFA would result in a clear and stable factor structure across studies. The extant literature evidences this lack of consistency; the factor structure of the commonly employed Ways of Coping Checklist (WCCL; Folkman & Lazarus, 1980) (and/or revised Ways of Coping Questionnaire (WAYS; Folkman & Lazarus, 1988) has been reported to demonstrate between three and 28 factors (Ferguson & Cox, 1997).

This thesis seeks to understand transactional coping functions, as described by individuals' *self-defined* coping goals. That is to say, the work presented concerns what the individual believes their coping response would achieve. This is in line with Ferguson and Cox's (1997) conceptualisation and the Functional Dimensions of Coping Scale (FDC: Ferguson & Cox, 1997) was therefore utilised to capture coping cognitions and behaviours and permit the participants to define for themselves what functions they believe their coping efforts would perform for them. While the measure has limited psychometric

exploration (Flynn et al., 2006) beyond the initial development (Ferguson & Cox, 1997), it is uniquely positioned to capture coping as considered within the definitions adopted within this thesis.

1.7.2.1.1 Number of coping functions

Divergent functional accounts of coping differ in terms of the number of dimensions conceptualised. The most parsimonious accounts consider all coping functions subsumed under a single uni-dimensional construct, approach-avoidance (Roth & Cohen, 1986). More complex structures consider multiple functional dimensions, e.g., emotion-focused vs. problem-focused (Lazarus & Folkman, 1984; Pearlin & Schooler, 1978) (see Table 1). Following an extensive review of extant coping measures, Cox and Ferguson (Cox & Ferguson, 1991) posit four qualitatively distinct coping functions: (i) emotional regulation (dealing with the emotional consequences of a problem), (ii) approach (dealing directly with the problem), (iii) reappraisal (readdressing and reinterpreting the meaning of a situation), and (iv) avoidance (allowing the individual to ignore the existence of the situation). The relationship between these functional dynamics and more parsimonious accounts are summarised in Table 1.

Table 1. The relationships between the four transactionally defined functional coping dynamics outlined by Cox and Ferguson (1991) and alternative conceptualisations of functional coping. Table adapted from Ferguson and Cox (1997, p. 112).

Functional coping dimensions	Description	Authors
Unidimensional		
Approach - avoidance	(A single dimension subsuming approach, avoidance, reappraisal and emotional regulation dimensions)	(Roth & Cohen, 1986)
Two dimensions		
Approach vs. avoidance	Separate dimensions for: 1. Approach coping (approach, reappraisal and emotional regulation dimensions) 2. Avoidance coping (avoidance)	(Krohne, 1989) (Holahan & Moos, 1991) (Holahan & Moos, 1990)
Emotion-focused vs. problem-focused	Version A - Separate dimensions for: 1. Problem-focused coping (approach, reappraisal and avoidance dimensions) 2. Emotion-focused coping (emotional regulation)	(Lazarus & Folkman, 1984)

	Version B - Separate dimensions for: 1. Problem-focused coping (approach and reappraisal dimensions) 2. Emotion-focused coping (emotional regulation and avoidance dimensions)	(Pearlin & Schooler, 1978)
Three dimensions		
Problem-focused vs. emotion-focused vs. reappraisal	Version A - Separate dimensions for: 1. Problem-focused coping (approach) 2. Emotion-focused coping (emotional regulation and avoidance dimensions) 3. Reappraisal coping (reappraisal)	(Pearlin & Schooler, 1978)
	Version B - Separate dimensions for: 1. Problem-focused coping (approach and avoidance dimensions) 2. Emotion-focused coping (emotional regulation) 3. Reappraisal coping (reappraisal)	(Pearlin & Schooler, 1978) (Lazarus & Folkman, 1984)
	Version C - Separate dimensions for: 1. Problem-focused coping (approach) 2. Emotion-focused coping (emotional regulation) 3. Reappraisal (reappraisal and avoidance dimensions)	(Pearlin & Schooler, 1978) (Moos & Billings, 1982)

1.8 The relationship between coping and experiential avoidance – overlapping constructs?

Research indicates that coping and experiential avoidance are overlapping, but discrete, constructs (Karekla & Panayiotou, 2011). Avoidance coping strategies, or the propensity to engage in behavioural avoidance as a means to down-regulate an affective response in stressful situations, may be considered a component process of experiential avoidance (Chawla & Ostafin, 2007; Kashdan et al., 2006). However, experiential avoidance is a broader construct incorporating additional coping facets, such as aspects of detachment coping and emotion suppression (Kashdan et al., 2006), as well as a generalised tendency for decreased psychological flexibility (Hayes et al., 1996), heightened cognitive entanglement with internal experiences, and increased perceived uncontrollability of threats (Kashdan et al., 2006). Thus, experiential avoidance encompasses an emphasis on internally focused events and refers to both the cognitive (e.g., attention; appraisal) and behavioural (e.g., avoidant coping) strategies utilised as a means of altering aversive experiences and the events that elicit them (Hayes et al., 1996).

Experiential avoidance has been outlined as a central component in the development of increased perceived stress due to its relationship with coping dynamics; emotional avoidance demonstrates a propensity to engender coping responses that diminish resources, thus reducing an individual's capacity to deal with day-to-day activities and tasks (Karekla & Panayiotou, 2011). As highlighted by Kashdan et al. (2008) "prolonged, inflexible non-acceptance of emotional responses can consume attention, vitality and other resources,

leaving fewer resources to cope and thrive in everyday life" (p. 437). Conversely, flexible, responsive coping and a tendency towards emotional acceptance are less of a burden on cognitive resources. Thus, individuals with reduced reliance on experiential avoidance often report lower levels of perceived stress and demonstrate coping responses that allow them to navigate the nuances of life with relative ease (Bardeen et al., 2013). Accordingly, individuals who exhibit low experiential avoidance report higher quality of life (Karekla & Panayiotou, 2011).

Research exploring the underlying factor structure of coping and experiential avoidance indicates that experiential avoidance relates to both avoidant coping and emotion-focused coping that is not typically considered avoidant (e.g., self-blame; emotional support seeking). Importantly, those with heightened experiential avoidance tendencies not only suppress aversive emotion but may also process and express affect maladaptively. This may account for the unique variance in explaining psychological distress, health and wellbeing contributed by experiential avoidance, beyond coping (Karekla & Panayiotou, 2011).

1.9 Coping and self-harm

Extant research considering the relationship between coping and self-harm typically considers emotion-focused coping (or 'avoidance' coping) – coping intending to manage the emotions generated by a stressor (such as disengaging or avoidance) – and problem-focused coping (or 'approach' coping) – coping intending to actively change the stressful situation, for the better, in some way (such as by talking to someone about it) (e.g., Evans et al., 2005; Glazebrook et

al., 2016). Typically, emotion-focused coping is considered to be maladaptive and problem-focused coping is considered to be adaptive. This is due to empirical evidence suggesting that: (i) overreliance on emotion-focused coping, to the exclusion of problem-focused coping, is related to increased psychological distress and 'psychological maladjustment' (Folkman & Lazarus, 1980; Mitchell et al., 1983; Moos & Billings, 1982; Pearlin & Schooler, 1978), and (ii) coping style is related to quality of life (Mc Hugh et al., 2016). Work in this area has therefore typically explored whether those who self-harm have poorer coping repertoires than those who do not self-harm and whether those with a history of self-harm over utilise emotion-focused coping (Evans et al., 2005; Haines & Williams, 1997).

A number of school-based studies have investigated coping in relation to self-harm. Research from Australia indicates that self-harm is associated with coping by self-blame (N = 3,757; a response rate of 91.7%) (De Leo & Heller, 2004). In the UK, results of a large, schools-based research project (N = 6,020 of whom 5,737 completed both the self-harm and thought of self-harm questions) suggest that young people who self-harm are more likely to rely on avoidant or emotion-focused behaviours (e.g., staying in their rooms; having an alcoholic drink; getting angry), rather than problem-focused behaviours, when faced with a stressor. Young people with no experience of self-harm thoughts or behaviours were more likely to engage in strategies which focused on the problem (e.g., talking to someone or trying to sort things out) (Evans et al., 2005). This is in line with empirical evidence suggesting that those who self-harm are often less able to effectively problem solve (e.g., Kingsbury et al., 1999). An international schools-based survey compared Belgian and Dutch

adolescents (*N* = 8,889, aged 15-16 years: *n* = 4,431 Belgian students; *n* = 4,458 Dutch students), as Belgian adolescents report a nearly threefold higher rate of self-harm than their Dutch counterparts. Belgian young people demonstrated a higher level of reporting of significant life events, coupled with less effective problem-solving. This included lower levels of problem-focused coping, higher levels of substance use and reduced communication around problems encountered. The results suggest that these differences in coping approach may help to account for the differences in prevalence rates of self-harm observed (Portzky et al., 2008).

Using data collected via the Ulster University Student Wellbeing Study (Northern Ireland, *n* = 716) – a component part of the World Health Organization World Mental Health International College Student Initiative – McLafferty and colleagues (2019) explored the relationships between coping and mental health difficulties, including self-harm, as well as the predictors of good coping. A composite coping measure asked participants to consider the extent to which they deal with stress in the following ways: (i) keeping calm and thinking of the right thing to say in a crisis, (ii) managing stress, (ii) trying new approaches if old ones do not work, (iv) getting along with people when you have to, and (v) keeping a sense of humour in tense situations (p. 298). Ratings were summed. Negative correlations were found between level of coping and mental health problems, including self-harm and suicidal behaviour. Reappraisal, suppression, and social networks were significantly positively associated with good coping scores. However, the best unique predictor of coping was gender; females report coping less well than males.

As part of the WHO/EURO Multicentre Study on Suicidal Behaviour, patients who had received medical attention for self-harm (*N* = 836; 59% of who had repeated self-harm), from across 12 European regions, were interviewed to investigate whether specific types of problem-solving were associated with repetition of self-harm. Passive-Avoidance – "characterized by a pre-occupation with problems, feeling unable to do anything, worrying about the past and taking a gloomy view of the situation, a greater likelihood of giving in so as to avoid difficult situations, the tendency to resign oneself to the situation, and to try to avoid problems" – was the problem-solving dimension most strongly associated with repeated self-harm behaviour (McAuliffe et al., 2006, p. 45). It is important to note, however, that this relationship was attenuated by self-esteem.

Haines and Williams (1997) compared three groups (male prisoners with a history of self-harm, *n* = 19; prisoner controls with no history of self-harm, *n* = 13; non-prisoner controls with no history of incarceration or self-harm, *n* = 18)[15] in terms of how they coped with real world problems faced. Those with a history of self-harm reported higher levels of social withdrawal (emotion-focused coping; problem disengagement) and more problem avoidance behaviours (problem-focused coping; problem disengagement). They also felt that they had less control over their problem-solving options and reduced cognitive resources. However, this group did not rely on emotion-focused coping to the exclusion of problem-focused alternatives. Additional empirical evidence from prison populations suggests that those who self-harm

[15] All groups were age-matched and prisoner groups were matched for length of current sentence.

endorse lower levels of use of acceptance strategies, direct-action and positive reinterpretations, but elevated levels of avoidance behaviours (Dear et al., 2001, 1998).

Brown and colleagues (2007) compared the coping used by university students with no history of self-harm, those with past year self-harm, and those with a history of self-harm, but no past year engagement (*N* =223: past year self-harm, *n* = 23; lifetime history of NSSI, but no past year self-injury, *n* = 39). Of the 15 subscales of the Coping Orientation to Problems Experienced (COPE) measure, only two scales demonstrated a difference between groups (both maladaptive coping); those with any self-harm history endorsed greater levels of behavioural disengagement than those with no self-harm history and those with past self-harm (longer than 12 months ago) reported higher levels of substance use than the group with no self-harm history. There were no between group differences in adaptive coping (e.g., acceptance, planning, humour) or the elicitation of emotional or instrumental support.

Results of a systematic review exploring risk factors and correlates of self-harm suggest that engaging in self-harm is associated with lower self-esteem and problem-solving abilities, reduced belief in self-efficacy and a tendency towards self-derogation and self-blame (Fliege et al., 2009). Young people who self-harm have more negative problem orientation, leading to a tendency to interpret difficulties as a threat, question their capacity to resolve the situation successfully, and become more easily frustrated when confronted with challenges (see Glazebrook et al., 2016). Understanding coping in relation to self-harm is important not least given that: (i) having a problem considered insurmountable or insoluble is associated with increased feelings of

hopelessness and higher levels of suicidal intent in patients admitted to hospital following self-harm (Milnes et al., 2002), and (ii) both qualitative and quantitative research indicates that people commonly attribute their ability to stop self-harming to the acquisition of alternative (positive) coping skills (Gelinas & Wright, 2013; Turner et al., 2014; J. Whitlock et al., 2015).

A growing body of research is exploring coping in relation to self-harm in terms of coping *with* self-harm experiences (as opposed to coping with difficult and stressful experiences which might lead to self-harm experiences). Typically this work has explored how people aim to resist acting on self-harm urges (e.g., Klonsky & Glenn, 2008) or help-seeking related to self-harm (prior to or following an act of self-harm) (e.g., see Rowe et al., 2014, for a systematic review). To date, to our knowledge, no research has explored self-harm in relation to self-defined, transactional, functional coping dynamics as conceptualised by Ferguson and Cox (1991; 1997).

1.10 The importance of understanding change

As highlighted above, self-harm is not static. Those who have self-injured may not always continue to do so (Anderson & Crowther, 2012; Brown et al., 2007; Wadman et al., 2017); many who attempt suicide do not go on to make further attempts and most do not die by suicide (Hawton, Bergen, et al., 2015). This may be because of effortful resistance or other factors (e.g., change in self-harm experience, the development of alternative coping responses) (Klonsky & Glenn, 2008; Nock et al., 2009).

'Change' in relation to self-harm can mean a myriad of things. Change could refer to differences in the nature of self-harm experience (e.g., thoughts

vs. behaviour), change in method, frequency, or the medical severity associated with an act of harming, differences in the drive to act (e.g., urge intensity, compulsion, difficulty to resist) or change in the way self-harm is viewed by the individual (e.g., ego dystonic vs. ego syntonic), to name but a few.

The work in this thesis focuses primarily on understanding change in those with histories of self-harm and theoretically-derived, psychological factors which may: (i) determine self-harm experience (no self-harm; ideation only; enactment) in response to a given situation, and (ii) predict the repetition of self-harm over time (e.g., frequency). Change is also considered by examining whether factors which are predicted to differentiate those who have ever self-harmed from those with no history of self-harm behaviour also: (i) predict the recency and frequency of self-harm, and (ii) differentiate groups with differing intent histories (no self-injury; non-suicidal self-injury only; non-suicidal self-injury plus suicidal behaviour). Finally, the work presented considers change by exploring young people's views of an intervention (harm minimisation – sensation and process proxies) designed to prevent the transition from self-harm thought(s) to self-harm behaviour(s).

1.11 Ethical considerations

Self-harm and suicide are inherently sensitive topics, given their association with psychological distress. Ethical concerns are often levelled regarding the assessment of self-harm thoughts and behaviours (particularly those of suicidal intent). There is no evidence to suggest that measuring or discussing suicidal thoughts or behaviours increases a person's likelihood of attempting suicide (Dazzi et al., 2014; DeCou & Schumann, 2018; Mathias et al., 2012; Smith et

al., 2010). Moreover, research has indicated that, in general, participation in studies addressing self-harmful behaviour has a beneficial rather than iatrogenic effect (Gould et al., 2005). Non-treatment research protocols have concluded that asking about ideation is not related to subsequent suicidal behaviours, including among vulnerable populations and depressed individuals (Smith et al., 2010). Questioning in regards to ideation and the assessment of suicidality is a justifiably safe practice (DeCou & Schumann, 2018; Mathias et al., 2012).

All studies presented within this thesis received ethical approval from the School of Psychology, Ethics Review Committee (University of Nottingham) (see Appendix A). All protocols included 'howlers', funny exam answers, at the end of study involvement (see Appendix C). These were selected as a positive mood induction given they have demonstrated efficiency in inducing positive mood in online protocols (Göritz, 2007).

Participants across all studies were provided with signposting information to sources of support, as well as the contact information of the research team and the chair of the Ethics Review Committee. This information was available to participants throughout study involvement; in online protocols it was included as a hyperlink introduced to the participants in the information sheet, available in the header or footer of each study page and re-presented upon completion in the debrief materials. In face-to-face laboratory work the information was given to the participants in printed format upon completion of, or withdrawal from, the study. Study participation slots were arranged to permit adequate free time after completion of the study for the participant to talk through their experiences with the researcher, should they wish to.

All participants could elect to omit answering of any questions and, in online protocols, could halt participation and return to complete the protocol at any point. Efforts were made to ensure that no participant was detrimentally affected if they choose to skip a question or a measure; participants were deemed adherent and received their full RPS credit or inconvenience allowance (where applicable) if they *started* the protocol-specified participation, rather than if they completed their entry.

In datasets 1-4, participants completed the assessments related to self-harm behaviour(s) first. In dataset 5, in the laboratory sessions participants completed the assessments related to self-harm behaviour(s) first. In the daily assessment component of the daily diary study self-harm participants completed the measures related to self-harm thoughts and behaviours last. The interview schedule for study 5b is presented in Appendix B.

1.12 Research questions

The work contained within this thesis explores whether experiential avoidance and functional coping dynamics can help us to further understand change in self-harm thoughts, experiences (e.g., urges, difficulty resisting) and behaviour.

Specifically, the research presented in this thesis aims to investigate:

1) Whether experiential avoidance and functional coping dynamics can: (i) differentiate those with and without a lifetime history of self-harm, and (ii) predict the recency and frequency of self-harm (Chapter 2).

2) The relative importance of experiential avoidance and functional coping dynamics in self-harm of differing suicidal intent (Chapter 4).

3) Whether exploring functional coping dynamics can help us to understand *when* someone might: (i) think about harming, and (ii) self-harm (Chapter 3; Chapter 5).

4) Whether harm minimisation (sensation and process proxies) is viewed by young people, with a history of self-harm, as being effective in stopping the transition from thinking about self-harming to acting upon those thoughts (Chapter 6).

The work explores these dynamics in community samples, given the marked concern about self-harm within the community (Hasking et al., 2008; Lloyd-Richardson et al., 2007). As coping and experiential avoidance represent transdiagnostic factors, exploration will not be reduced to those who have been given a particular mental health diagnosis. This decision also reflects the marked difficulty in confirming mental health diagnoses in online research protocols and a background tension as to the value and validity of diagnostic classification (e.g., Boyle & Johnstone, 2014; Hayes & Bell, 2014; Hendy, 2015; McCuthcheon, 2014; Thompson, 2014).

1.13 Thesis structure

Chapters 2-6 present five empirical studies:

1) Study 1 (Chapter 2) provides an initial test of the EAM in self-harm (regardless of intent), investigating the relationship between functional coping dynamics, experiential avoidance and the recency and frequency of self-harm.

2) Study 2 (Chapter 3) extends this, by exploring (in those with a recent history of self-harm) whether functional coping dynamics can differentiate differing self-harm experience (no-self harm; self-harm ideation only; self-harm enactment) in response to a given situation.
3) Study 3 (Chapter 4) examines whether experiential avoidance and functional coping dynamics differentiate individuals with self-injury histories of differing intent (no self-injury; non-suicidal self-injury only; non-suicidal self-injury plus suicidal behaviour).
4) Data from the above cross-sectional research (Chapter 2 and Chapter 3) provide the basis for exploring whether coping moderates the relationship between stress and self-harm experience(s) (thoughts; urges; difficulty to resist self-harming; time-spent thinking about harming; behaviour) in Study 4 (Chapter 5). Here, micro-longitudinal, daily dairy methodology was embedded within a longitudinal research design.
5) Study 5 (Chapter 6) used a mixed methods (secondary data analysis) approach to explore whether harm minimisation is viewed by young people, with a history of self-harm, as being effective in stopping the transition from thinking about self-harming to acting upon those thoughts.

The use of a combination of cross-sectional surveys, with large sample sizes, and micro-longitudinal methodology embedded within a longitudinal protocol enabled the research presented within this thesis to more fully investigate between and within-person relationships between key theoretically-

derived, psychological variables and changes in self-harm thoughts and behaviours. The use of both qualitative and quantitative methodologies allowed for appropriate matching of research questions to methodologies and an opportunity to more comprehensively address the questions posed. Figure 3 indicates how datasets collected through this doctoral research map to thesis chapters.

Chapter 7 presents a general discussion of the findings, including consideration of the conclusions that can be drawn at this stage in the research, the limitations of the current research and directions for future study.

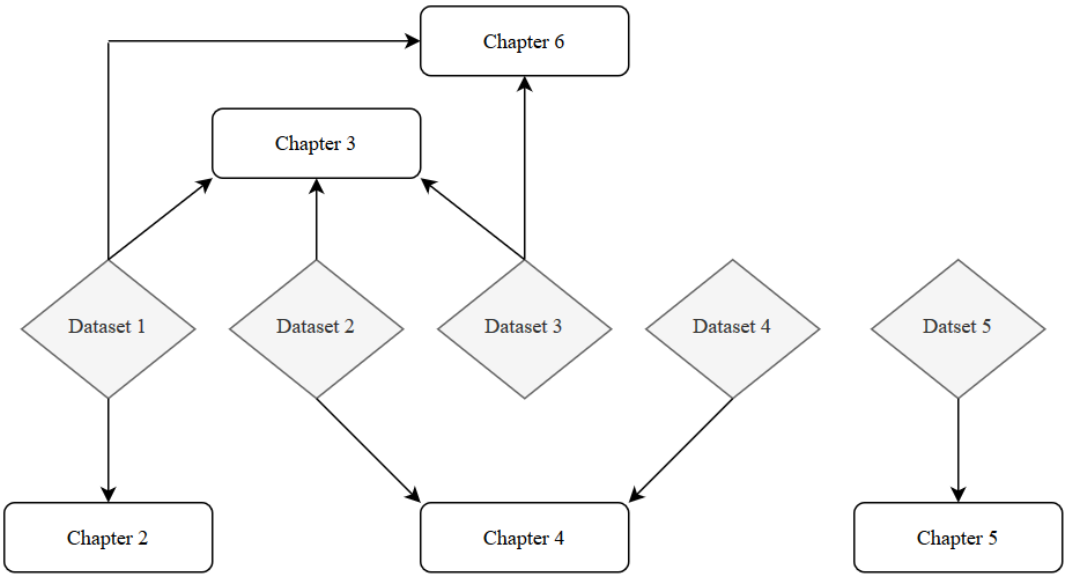


Figure 3. PhD datasets mapped to thesis chapters.

The research presented in Chapter 2 is published in:

Nielsen, E., Sayal, K. & Townsend, E. (2016). Exploring the relationship between experiential avoidance, coping functions and the recency and frequency of self-harm. *PLoS ONE, 11*(7), e0159854. https://doi.org/10.1371/journal.pone.0159854

Chapter 2. EXPLORING THE RELATIONSHIP BETWEEN EXPERIENTIAL AVOIDANCE, COPING FUNCTIONS AND THE RECENCY AND FREQUENCY OF SELF-HARM

The present study focuses on experiential avoidance and the implementation of coping cognitions and behaviours, specifically the perceived functional dynamics of elected coping responses. While both structural and functional accounts are paramount to building a comprehensive understanding of coping, there is a lack of research addressing functional coping dynamics in relation to self-harm. Indeed, despite an increased understanding that functionality is paramount in understanding the complex and dynamic nature of self-harm (Shaw, 2006), to the best of our knowledge, this is the first study which addresses transactional, self-defined, functional coping in relation to both life-time self-harm and self-harm recency.

2.1 Introduction

The EAM (Chapman et al., 2006) proposes that the tendency towards emotional avoidance is particularly strong in individuals who self-harm. While empirical evidence supports this notion of between-group differences in aspects of emotional responding where the self-harm group is comprised exclusively of those with recent behaviour engagement, there is a dearth of evidence examining the proposed relationship in more diverse samples (Brown et al., 2007). The present study seeks to extend the understanding of the relationship between experiential avoidance, coping function and self-harm by exploring both lifetime engagement and the recency of self-harm. In line with the theoretical account, it is hypothesised that those with a lifetime history of

self-harm will report higher levels of experiential avoidance and higher levels of coping perceived as avoidant and emotion regulatory in function, than those who have never self-harmed. Further to this, it is hypothesised that increased endorsement of experiential avoidance and higher levels of both avoidant and emotional regulatory coping will predict self-harm recency.

Given that the EAM (Chapman et al., 2006) is a behavioural model, frequency, as well as recency of engagement, is hypothesised as being a key characteristic when considering the relationship between self-harm, experiential avoidance and coping function. The model posits that with successive reductions in negative affect, associations are strengthened such that self-harm becomes an automatic escape response. Thus, individuals become progressively reliant on emotionally avoidant repertoires. Those with higher lifetime frequency of behaviour engagement will have been exposed to a greater number of experiences, or 'trials', thus it is proposed that the association will be stronger. Therefore, it is hypothesised that higher frequency self-harm will be associated with increased endorsement of experiential avoidance and higher levels of both avoidant and emotional regulatory coping.

Experiential avoidance tendency is associated with the expression of both negative affect (Karekla & Panayiotou, 2011) and self-reporting of depressive symptomology (Costa & Pinto-Gouveia, 2011). Age has also been shown to relate to coping (Trouillet et al., 2009). Therefore, affect and age will be investigated alongside coping function. It is hypothesised that higher experiential avoidance, avoidance and emotional regulatory coping will be associated with increased negative affect and decreased positive affect.

Conversely, older age will be associated with increased approach and reappraisal coping.

In its original conceptualisation, the EAM focuses exclusively on "self-injurious behavior that occurs in the absence of any intent to die" (Chapman et al., 2006, p. 372), arguing that the distinction between non-suicidal self-injury and behaviour that involved any intent to die is important, "given evidence of differences in the functions" of non-suicidal self-injury and suicide attempts (Chapman et al., 2006, p. 373). Other conceptualisations consider suicidal behaviour as an "extreme form of emotional avoidance" (Chiles & Strosahl, 2005, p. 59). Indeed, the notion of suicidality as an expression of experiential avoidance is arguably consistent with Baumeister's (1990) depiction of suicide as escape from aversive self-evaluation, Shneidman's (1998) description of 'egression', and the drive to escape from an unbearable situation outlined in the Cry of Pain (Williams & Pollock, 2001). As such, experiential avoidance may be an important transdiagnostic tendency in a pathway to suicidality (Luoma & Villatte, 2012).

Recent research evidence indicates that experiential avoidance may be a key psychological variable in suicidality (suicidal ideation) and, moreover, that addressing experiential avoidance therapeutically may contribute to a reduction in ideation in suicidal individuals, independently of decreased hopelessness and depressive symptomology (Ellis & Rufino, 2016). Further to this, reduced distress tolerance (Linehan, 1993), increased cognitive rigidity (Shneidman, 1993), emotion regulation and avoidance focused coping (Edwards & Holden, 2001) relate to both experiential avoidance and suicidality. Given that: (i) an emerging body of evidence suggests that experiential avoidance is a key

construct in self-harm enacted in both the presence and absence of suicidal intent, and (ii) taxometric analyses indicate that non-suicidal self-injury does not represent a discrete typology (Orlando et al., 2015), the current study assesses the relationship between experiential avoidance, coping, and the recency and frequency of self-harm, regardless of suicidal intent (e.g. including self-harm with mixed intent, suicidal intent, ambivalence) .

2.2 Methods

2.2.1 Participants

One thousand, three hundred and thirty-two (N = 1,332) adult participants took part in the study. Participants varied in age between 16 and 69 years (Mean: 19.57, ±6.22). The majority of the sample was female (75.2%). However, it is important to note the omission of demographic information for 194 participants for gender (3.2%, n = 42 "prefer not to say"; 11.4%, n = 152 missing), and 151 for age (11.3%). Ethnicity demographics were not captured; however, country of completion was assessed. Over 40% (41.7%) of participants were based in North America, 0.3% South America, 0.8% Asia, 6.3% Australasia, 0.1% Africa and 50.8% Europe (data were missing for one participant).

2.2.2 Design and procedure

All data were collected via a cross-sectional, community-based survey, administered online. The study was advertised across online platforms and forums (e.g., Twitter; Reddit etc.), via e-mail listings (e.g., Self injury Support UK) and the School of Psychology's Research Participation Scheme (University of Nottingham). Where applicable, first year undergraduate

students received partial course credit for their participation. In line with ethical considerations regarding informed consent, the exclusion criteria prohibited those aged under 16 years from participation. Recruitment was not topic blind; the study was advertised as "part of an on-going project investigating coping function and self-harmful behaviours". All advertising materials highlighted that the study was "recruiting participants who have never self-harmed, as well as those who have".

The work received ethical approval from the University of Nottingham, School of Psychology Ethics Committee (Ref. 335R). All participants provided written informed consent.

2.2.3 Measures

2.2.3.1 Demographic factors

Age, gender and continent of residency demographics were collected.

2.2.3.2 Experiential avoidance

The Acceptance and Action Questionnaire-II (AAQ-II: Bond et al., 2011) is a seven-item self-report measure which considers an individual's willingness and ability to stay in contact with aversive internal experiences (e.g., "Emotions cause problems in my life"; "My painful memories prevent me from having a fulfilling life"; "My painful experiences and memories make it difficult for me to live a life that I would value"). Item scores are summed; higher scores indicate higher endorsement of experiential avoidance tendencies. The AAQ-II has demonstrated adequate psychometric properties (Bond et al., 2011).

Internal consistency for the AAQ-II in the present study was excellent (α = .937).

2.2.3.3 Coping

The Functional Dimensions of Coping scale (FDC: Ferguson & Cox, 1997) is a three-stage measure, capturing both qualitatively and quantitatively how people attempt to cope with situations they find stressful or distressing. The measure assesses what an individual believes their engagement in specific behaviours will achieve. Parts one and two allow the participant to describe: (i) a stressful event they have experienced (in the previous 3 months) and (ii) the coping responses (i.e., cognitions, behaviours) they used to help them deal with this (free response). A 16-item series of Likert measures permit indication of the perceived coping function(s) of these coping responses. Item scores are summed; higher scores indicate higher endorsement of coping function.

The measure pertains to four dimensions of coping: (i) emotion regulation (dealing with the emotional consequences of a problem, e.g., "To what extent did this/ these activities allow you to manage the distress and upset caused by the event?"), (ii) approach functions (dealing directly with the problem, e.g., "To what extent did this/ these activities allow you to understand something of the nature of the problem, from which you could attempt to deal directly with it?"), (iii) reappraisal (readdressing and reinterpreting the meaning of a situation, e.g., "To what extent did this/ these activities allow you to step back and look at the problem, in a different way, such that it seemed better?") and, (iv) avoidance functions (allowing the individual to ignore the

existence of the situation, e.g., “To what extent did this/ these activities distract you from thinking about the problem?”).

It is important to note that the FDC measure deliberately does not restrict focus exclusively to a single coping response. The multi-dimensional nature of the scale allows for easy accommodation of the simultaneous, multiple functions typical of self-harm (Suyemoto, 1998). The measure exhibits good internal reliability and construct validity. Internal consistency for FDC subscales in the present study was good (approach, $\alpha = .863$; avoidance, $\alpha = .777$; emotion regulation, $\alpha = .794$; reappraisal, $\alpha = .875$).

2.2.3.4 Affect

The Positive And Negative Affect Scale (PANAS: Watson et al., 1988) is a 20-item measure of general mood. Ten items pertain to positive emotional states (e.g., “excited”; “determined”; “proud”) and 10 describe negative states (e.g., “distressed”; “hostile”; “irritable”). Participants were instructed to rate momentary affect. The measure exhibited excellent internal consistency for both positive ($\alpha = .862$) and negative ($\alpha = .926$) subscales in the current sample.

2.2.3.5 Self-harm

Section one of the Inventory of Statements about Self-Injury (ISAS: Klonsky & Glenn, 2009; Klonsky & Olino, 2008) was administered to assess lifetime frequency of 12 behaviours (i.e., banging/ hitting self; biting; burning; carving; cutting; wound picking; needle-sticking; pinching; hair pulling; rubbing skin against rough surfaces; severe scratching; swallowing chemicals). The measure

includes an “other” category, allowing free report of self-harm behaviours. In line with the phrasing of the original measure, 662 (49.7%) participants indicated behaviours performed “intentionally (i.e., on purpose) and without suicidal intent”. Six hundred and seventy participants (50.3%) completed the item considering self-harm irrespective of suicidal intent, or lack thereof. These groups were combined prior to analysis, given that all those who self-harm fall along a continuum of intent (Kapur et al., 2013; Orlando et al., 2015).

2.2.3.5.1 Recency of last self-harm episode

The Inventory of Statements about Self-Injury (ISAS: Klonsky & Glenn, 2009; Klonsky & Olino, 2008) captures information regarding when the most recent episode of self-harm occurred (section one, question three). Date stamping for survey completion allowed for a recency variable to be computed, representing the number of days since last self-harm episode. Where exact date information was not available, a metric was generated to ensure that standardised rules were applied across participants. For example, in instances where just a month was indicated by the participant (e.g., ‘August’), recency was computed from the 15th of that month (i.e., 15th August).

2.2.4 Data analysis

Data were analysed using SPSS V21 for Windows. Experiential avoidance, approach, avoidance, emotion regulation and reappraisal were normally distributed. Recency and lifetime frequency demonstrated significant skew. It is also important to note the markedly unequal group sizes when considering lifetime dichotomised engagement with self-harm. Therefore, in all analyses

non-parametric tests were performed. In all instances of missing data, cases were excluded pairwise.

A series of Spearman Rho correlations were conducted to test whether coping functions and experiential avoidance were associated with age and affect. As significant relationships were observed, age and affect were included in subsequent analyses and multivariate analyses were adjusted for their effect.

In order to compare the endorsement of experiential avoidance and coping functions between those with and without a lifetime history of self-harm, a series of binary logistic regressions were conducted. Experiential avoidance and coping functions were then entered into a multivariate binary logistic regression, to explore effects when adjusting for age and affect.

A series of univariate negative binomial regressions were conducted to explore whether there is a relationship between experiential avoidance, coping function, and the recency of self-harm. The influence of age and affect on self-harm recency was also explored. Experiential avoidance and coping functions were then entered into multivariate negative binomial regression, to explore effects when adjusting for age and affect. Finally, the effect of experiential avoidance, coping function, age and affect on lifetime frequency of self-harm was assessed by a series of univariate negative binomial regressions, before these variables were entered into multivariate analysis. Negative binomial regressions were selected as, in addition to being suited to count data, this analytic approach models over-dispersion. Negative binomial regression models therefore provided a better fit to the data than scale weighted Poisson regressions ($1/\frac{\chi^2}{n-p}$, where p is the number of known model parameters).

2.3 Results

2.3.1 Preliminary analyses

Of the 1,332 individuals in the sample, 88.1% reported lifetime self-harm. Of those who had ever self-harmed, 115 (10.1%) participants had self-harmed on the day of the study, 45.3% (cumulative percentage) had within the last week, 54.2% in the last fortnight, and 65.6% in the last month (31 days). The number of days since last episode of self-harm ranged from 0 to 12,775 days (35 years).

The majority of the sample who reported self-harm histories reported high frequencies of behaviour engagement. Nearly one third (29.8%) of participants reported more than 500 self-harm episodes during their lifetime (501-1,000 episodes, 12.9%; 1,001-5,000, 12.9%; >5,000 episodes, 4.0%), with a further 44.5% of participants reporting having self-harmed 101-500 times. Around a quarter (25.8%) of participants reported engaging 100 times or less (1-5 episodes, 1.7%; 6-50 episodes, 11.2%; 51-100 episodes, 12.9%). Self-cutting was the most commonly reported method of self-harm (see Table 2).

Thirteen participants (< 1%) reported extremely high frequency estimates (e.g., > 10^9). On examination of the ISAS responses, it appeared that these participants had entered predominantly large, rounded figures on all indicated behaviours. The figures were therefore taken to indicate frequent engagement (e.g., ‘thousands of times’) rather than a literal count, and lifetime frequency was capped at 50,000 for subsequent analyses. This did not affect the sample median (= 198) or IQR (= 475).

Table 2. Methods of self-harm reported by participants with a lifetime history of self-harm (*n* = 1,173).

Self-harm method (lifetime)	*n*	(%)
Cutting	1071	(91.3)
Interfering with wound healing	883	(75.3)
Banging or hitting self	864	(73.7)
Severe scratching	850	(72.5)
Pinching skin against a rough surface	723	(61.6)
Biting	671	(57.2)
Burning	645	(55.0)
Pulling hair	574	(48.9)
Carving	490	(41.8)
Sticking self with needles	428	(36.5)
Rubbing	420	(35.8)
Swallowing dangerous substances	409	(34.9)
Other	133	(11.3)

Note. Participants indicated self-harm behaviours which they had ever engaged in. Therefore, many participants are indicated in more than one group. "Other" self-harm methods include medication overdoses, strangling, hanging, asphyxiation, choking, falling/jumping from high places/onto hard surfaces, etc.

Table 3. Spearman Rho correlation analyses investigating the associations between experiential avoidance, coping function, age and affect (N = 1,332).

	1	2	3	4	5	6^	7
Experiential avoidance[a]							
Approach[b]	**-.399*** **						
Avoidance[b]	**.227*** **	**-.222*** **					
Emotion regulation[b]	**-.081** **	**.241*** **	**.340*** **				
Reappraisal[b]	**-.405*** **	**.813*** **	**-.128*** **	**.256*** **			
Negative affect	**.690*** **	**-.335*** **	**.225*** **	**-.089** **	**-.360*** **		
Positive affect	**-.421*** **	**.329*** **	**-.132*** **	.076*	**.370*** **	**-.252*** **	
Age†	**-.419*** **	**.310*** **	**-.193*** **	.071*	**.288*** **	**-.428*** **	**.220*** **
Median (IQR)	39.00 (15.00)	5.00 (10.00)	14.00 (11.00)	12.00 (7.00)	6.00 (12.00)	29.00 (19.00)	18.00 (8.00)

Note. [a] Experiential avoidance, as measured by the AAQ-II. [b] Functional coping dynamics, as measured by the FDC scale. IQR = interquartile range, * denotes significance at $p < .05$, ** denotes significance at $p < .01$, *** denotes significance at $p < .001$, **bold** typeface indicates significant relationship when Bonferroni corrected ($p < .006$), ^ n = 1,270, † n = 1,181, two-tailed.

The relationships between experiential avoidance, coping functions and demographic/contextual factors were explored (see Table 3). Spearman's correlations indicated that older age was related to lower levels of experiential avoidance and avoidance coping, and increased levels of approach, emotion regulation and reappraisal coping functions. The same pattern of relationships was observed for positive affect. Conversely, increased negative affect was related to increased experiential avoidance and avoidance coping, and decreased endorsement of approach, emotion regulation and reappraisal coping functions. Therefore, after conducting univariate analyses, all variables were entered into multivariate regressions, adjusting for age and affect.

2.3.2 Does experiential avoidance and coping differ between individuals with and without a lifetime history of self-harm?

Results of a series of univariate binary logistic regressions indicate that those who have ever engaged in self-harm (n = 1,173) showed significantly higher levels of experiential avoidance than those with no self-harm history (n = 159) (β = 1.193, 95% CI: 1.166 – 1.220, $p < .001$. Model χ^2 (1) = 403.713, $p < .001$). Further, differences in coping function were also apparent; those with a lifetime history of self-harm were significantly more likely to endorse avoidance coping (β = 1.073, 95% CI: 1.047 – 1.100, $p < .001$. Model χ^2 (1) = 32.010, $p < .001$) than those who have never self-harmed. Those with a lifetime history of self-harm were also significantly less likely than those who have never self-harmed to endorse approach (β = .854, 95% CI: .831– .876, $p <$ .001. Model χ^2 (1) = 155.462, $p < .001$), reappraisal (β = .884, 95% CI: .865 – .903, $p < .001$. Model χ^2 (1) = 141.386, $p < .001$), and emotion regulation

coping (β = .936, 95% CI: .902 – .972, $p < .001$. Model χ^2 (1) = 12.806, $p <$ .001) in response to a stressor. Experiential avoidance and coping variables were then entered into a multivariate analysis to explore effects when adjusting for age and affect. Negative affect, age and experiential avoidance remain significant (see Table 4).

Table 4. Multivariate binary logistic regression exploring whether functional coping dynamics and experiential avoidance predict lifetime history of self-harm, when adjusting for age and affect (n = 1,173).

	OR	95% CI for OR		*p*
		Lower	Higher	
Negative affect	1.050	1.012	1.090	.010**
Positive affect	1.000	.999	1.000	.234
Age	.950	.921	.979	< .001***
Experiential avoidance[a]	1.137	1.101	1.174	< .001***
Approach[b]	.959	.902	1.020	.186
Avoidance[b]	.976	.933	.1020	.277
Emotion regulation[b]	1.059	.990	1.134	.097
Reappraisal[b]	.973	.926	1.023	.291

R^2 = .288 (Cox & Snell), .555 (Nagelkerke). Model χ^2 (8) = 384.058, $p < .001$.

Note. [a] Experiential avoidance, as measured by the AAQ-II. [b] Functional coping dynamics, as measured by the FDC scale. * denotes significance at $p < .05$, ** denotes significance at $p < .01$, *** denotes significance at $p < .001$.

2.3.3 Is there a relationship between experiential avoidance, coping function, and the recency of self-harm?

A series of univariate negative binomial regressions were conducted to explore whether experiential avoidance and coping functions predicted self-harm recency (see Table 5). The effects of age and affect were also explored. Experiential avoidance significantly predicted the recency of self-harm engagement; the incident rate for number of days since last episode of self-harm decreases by 11.9% for every unit increase in experiential avoidance tendency. Therefore, experiential avoidance was related to increased risk of recent engagement. Increased avoidance was also associated with more recent self-harm; the incident rate for number of days since last episode of self-harm decreases by 6.9% for every unit increase in avoidance coping.

Approach, reappraisal and emotion regulation coping were related to an increased period since last episode of self-harm. The incident rate for number of days since last episode of self-harm increased by 15.1%, 14.6% and 6.9% for every unit increase in approach, reappraisal, and emotion regulation coping respectively.

Increases in the reporting of both positive and negative affect were predictive of more recent self-harm. Age was also predictive of self-harm recency; the incident rate for number of days since last episode of self-harm increased by 21.8% for every year increase in age.

Table 5. A series of univariate negative binomial regressions exploring whether functional coping dynamics and experiential avoidance predict self-harm recency (n = 1,173).

	IRR	95% CI for IRR		p
		Lower	Higher	
Experiential avoidance[a]	.894	.881	.907	< .001***
		Model, $\chi^2(1) = 215.642$, $p < .001$		
Approach[b]	1.151	1.127	1.176	< .001***
		Model, $\chi^2(1) = 170.323$, $p < .001$		
Avoidance[b]	.935	.918	.952	< .001***
		Model, $\chi^2(1) = 53.767$, $p < .001$		
Emotion regulation[b]	1.069	1.037	1.102	< .001***
		Model, $\chi^2(1) = 17.476$, $p < .001$		
Reappraisal[b]	1.146	1.126	1.166	< .001***
		Model, $\chi^2(1) = 246.118$, $p < .001$		
Negative affect	.921	.912	.930	< .001***
		Model, $\chi^2(1) = 241.089$, $p < .001$		
Positive affect	.999	.999	1.000	< .001***
		Model, $\chi^2(1) = 9.935$, $p = .002$		
Age	1.218	1.179	1.258	< .001***
		Model, $\chi^2(1) = 260.304$, $p < .001$		

Note. IRR; Incident Rate Ratio, coefficients from negative binomial regressions are expressed on a log scale, therefore the table presents the exponent of the regression coefficients. [a] Experiential avoidance, as measured by the AAQ-II. [b] Functional coping dynamics, as measured by the FDC scale. * denotes significance at $p < .05$, ** denotes significance at $p < .01$, *** denotes significance at $p < .001$.

Experiential avoidance, coping functions, age and affect were then entered into a multivariate negative binomial regression to explore whether coping functions and experiential avoidance predict self-harm recency, when adjusting for age and affect. Negative affect, age and reappraisal coping remained significantly predictive of the recency of self-harm engagement. Here, the incident rate for number of days since last episode of self-harm increased by 8.3% for every unit increase in reappraisal coping (see Table 6). Both increased reappraisal coping and older age were related to a decreased risk of recent self-harm. Increased negative affect was related to more recent self-harm. In multivariate analysis, neither experiential avoidance nor approach, avoidance, or emotion regulation coping functions were significantly predictive of the recency of self-harm.

Table 6. Multivariate negative binomial regression exploring whether functional coping dynamics and experiential avoidance predict self-harm recency, when adjusting for age and affect (n = 1,173).

	IRR	95% CI for IRR		p
		Lower	Upper	
Negative affect	.964	.952	.977	< .001***
Positive affect	.999	.999	1.000	.004**
Age	1.152	1.113	1.193	< .001***
Experiential avoidance[a]	.991	.972	1.009	.322
Approach[b]	.980	.948	1.014	.250
Avoidance[b]	1.012	.994	1.031	.190
Emotion regulation[b]	.990	.962	1.020	.514
Reappraisal[b]	1.083	1.053	1.115	< .001***

Model, $\chi^2(8) = 437.341$, $p < .001$.

Note. IRR; Incident Rate Ratio, coefficients from negative binomial regressions are expressed on a log scale, therefore the table presents the exponent of the regression coefficients. [a] Experiential avoidance, as measured by the AAQ-II. [b] Functional coping dynamics, as measured by the FDC scale. * denotes significance at $p < .05$, ** denotes significance at $p < .01$, *** denotes significance at $p < .001$.

2.3.4 Is there a relationship between experiential avoidance, coping function and the lifetime frequency of self-harm?

A series of univariate negative binomial regressions were conducted to explore whether, in those with a history of self-harm, experiential avoidance and

coping functions predicted lifetime frequency of engagement. The effects of age and affect were also explored. Experiential avoidance significantly predicted the frequency of self-harm engagement; the incident rate for lifetime frequency of self-harm increases by 4.6% for every unit increase in experiential avoidance tendency (IRR = 1.046, p = .001, 95% CI: 1.034 – 1.057. Model, $\chi^2(1) = 54.094$, $p < .001$). Therefore, EA related to increased risk of higher frequency self-harm. Coping functions were also predictive of self-harm. Increased avoidance (IRR = 1.028, $p < .001$, 95% CI: 1.015 – 1.042. Model, $\chi^2(1) = 17.377$, $p < .001$) was also associated with higher frequency self-harm engagement. The incident rate for number of lifetime episodes of self-harm increases by 2.8% for every unit increase in functionally avoidant coping. Conversely, increases in both approach (IRR = .943, $p < .001$, 95% CI: .928 – .958. Model, $\chi^2(1) = 45.947$, $p < .001$) and reappraisal coping (IRR = .959, $p < .001$, 95% CI: .947 – .972. Model, $\chi^2(1) = 34.674$, $p < .001$) were associated with a decreased likelihood of high frequency self-harm. For every unit increase in approach coping, the incident rate for number of lifetime episodes of self-harm decreases by 6.0%; for reappraisal coping the decrease was 4.2%. Emotion regulation coping was not predictive of lifetime frequency of self-harm (IRR = 1.011, p = .236, 95% CI: .993 – 1.030. Model, $\chi^2(1) = 1.394$, p = .238).

Age (IRR = 1.030, p = .040, 95% CI: 1.001 – 1.060. Model, $\chi^2(1)$ = 4.530, p = .033) and positive affect (IRR = 1.000, p = .257, 95% CI: 1.000 – 1.000. Model, $\chi^2(1) = 1.327$, p = .249) were not predictive of lifetime frequency of self-harm.

Negative affect significantly predicted the frequency of self-harm engagement; the incident rate for lifetime frequency of self-harm increased by 3.6% for every unit increase in negative affect (IRR = 1.036, $p < .001$, 95% CI: 1.026 – 1.046. Model, $\chi^2(1) = 47.041$, $p < .001$). Therefore, negative affect related to increased risk of higher frequency self-harm.

The variables were then entered into a multivariate negative binomial regression in order to account for the effect of age and affect. In multivariate analysis, adjusting for age and affect, approach coping remained significantly predictive of lifetime frequency of self-harm. The incident rate for number of lifetime episodes of self-harm decreased by 4.1% for every unit increase in approach coping (see Table 7).

Table 7. Multivariate negative binomial regression exploring whether functional coping dynamics and experiential avoidance predict self-harm lifetime frequency, when adjusting for age and affect (n = 1,173).

	IRR	95% CI for IRR		p
		Lower	Upper	
Negative affect	1.031	1.017	1.045	< .001**
Positive affect	1.000	1.000	1.000	.250
Age	1.082	1.049	1.116	< .001**
Experiential avoidance[a]	1.009	.991	1.028	.327
Approach[b]	.960	.929	.991	.013*
Avoidance[b]	1.004	.986	1.023	.661
Emotion regulation[b]	1.023	.998	1.048	.067
Reappraisal[b]	.997	.973	1.023	.832

Model, $\chi^2(8) = 88.017$, $p < .001$

Note. IRR; Incident Rate Ratio, coefficients from negative binomial regressions are expressed on a log scale, therefore the table presents the exponent of the regression coefficients. [a] Experiential avoidance, as measured by the AAQ-II. [b] Functional coping dynamics, as measured by the FDC scale. * denotes significance at $p < .05$, ** denotes significance at $p < .01$, *** denotes significance at $p < .001$.

2.4 Discussion

The findings support the hypothesis that those who have engaged in self-harm show significantly higher endorsement of experiential avoidance tendencies, than those who have never self-harmed. This remains the case when experiential avoidance and coping functions are entered into multivariate analysis, adjusted for age and affect. As predicted, differences in the endorsement of coping functions were also observed, with those with a lifetime history of self-harm being significantly more likely to endorse avoidance coping, in univariate analysis.

However, contrary to our hypothesis, those with a history of self-harm were lower in emotion regulation coping than those who have never self-harmed. Differences were also apparent in approach and reappraisal coping; those with a lifetime history of self-harm were significantly less likely than those who have never self-harmed to endorse approach coping or reappraisal coping functions, in response to a stressor. Taken together, these findings suggest that the EAM (Chapman et al., 2006) is also a potentially useful theoretical framework when considering self-harm irrespective of suicidal intent, or lack thereof. That is to say, experiential avoidance may be an important psychological factor in self-harm of mixed intent, suicidal intent, or enacted with ambivalent intent, as well as non-suicidal self-injury, as outlined in the EAM. However, the observed effect sizes were small, indicating that other variables may be central in explaining both the initiation and continuation of self-harm behaviours.

More recent self-harm was, in univariate analysis, associated with lower endorsement of approach, reappraisal and emotional regulation coping and also higher levels of both avoidance coping and experiential avoidance. In multivariate analysis, adjusted for age and affect, reappraisal coping remained significantly predictive of the recency of self-harm; reappraisal related to a decreased risk of recent engagement.

Considering the lifetime frequency of self-harm, in univariate analysis, increased experiential avoidance was significantly predictive of a higher volume of self-harm engagement. While statistically significant, this effect was small. Considering the relative magnitude of effects, the results of this study indicate that experiential avoidance may be more useful in explaining the recency of self-harm than the lifetime frequency of behaviour engagement. Increased avoidance was also associated with higher frequency self-harm. Conversely, increases in both approach and reappraisal coping were associated with a decreased likelihood of high frequency self-harm. Emotion regulation coping was not predictive of self-harm frequency. When coping functions and experiential avoidance were entered into multivariate analysis, adjusted for age and affect, approach coping remained significantly predictive of lifetime frequency of self-harm. Increased endorsement of approach coping function was predictive of decreased lifetime frequency of harming.

While these findings offer a novel contribution to the literature, it is important that they are interpreted within the context of their limitations; while the Inventory of Statements about Self-Injury (Klonsky & Glenn, 2009; Klonsky & Olino, 2008) instructs participants to “estimate the number of times in your life you have intentionally (i.e., on purpose) performed each type of

self-harm (e.g., 0, 10, 100, 500)", participants may be unclear as to whether they are to report the number of episodes of self-harm, or the number of discrete injuries. Interpreting the instructions as the number of episodes may lead to marked underestimations in lifetime frequency. Further to this, those with higher volumes of self-harm may round their frequencies for each behaviour to the nearest 10, or 100 (a tendency which may have been amplified by the measure's inclusion of exclusively rounded numbers in the examples given), whereas those with fewer incidences in total may report more accurately. Some participants entered predominantly very large, rounded figures on all indicated behaviours. The figures were taken to indicate frequent engagement (e.g., 'thousands of times') rather than a literal count, and lifetime frequency was capped at 50,000, given the spread of the data. While this affected less than 1% of participants, and did not affect the sample *Mdn* or IQR, this interpretation of the measure and pre-analysis screening should be noted. Finally, recency of engagement may also have influenced lifetime frequency findings, as well as an individual's ability to accurately report on an event; accurate recall of more distal events may be hampered by memory biases.

When considering the relationship observed between emotion regulation coping and self-harm, it is pertinent to recognise the potential influence of the measure elected to assess coping dynamics. While the Functional Dimensions of Coping (Ferguson & Cox, 1997) scale outlines emotion regulation as "behaviours that the person believes will allow them to deal with the emotional consequences of the stressful encounter" (section one, page one), in line with conceptualisations outlined in the EAM (Chapman et

al., 2006), arguably a number of the scale items appear to relate more readily to the efficacy of these efforts, rather than the motivational and functional dynamics underpinning the coping effort per se (e.g., “To what extent did this/these activities allow you to manage the distress and upset caused by the event?”; “To what extent did this/these activities allow you to handle any anxiety caused by the event?”). Therefore, it may be that while individuals who self-harm are motivated to deal with aversive emotional outcomes of stressful/distressing events, they are low in endorsing the emotion regulatory items, due to the perceived inefficacy of their actions. Given the established literature linking self-harm to difficulties in emotion regulation (Gratz & Roemer, 2004), such explanations could explain the pattern of results observed; specifically, why our results indicate that emotion regulation coping was lower in those with a lifetime history of self-harm and also why increased emotion regulation coping was related to an increased period since the last episode of self-harm. Further support for this suggestion may also be taken from the small association observed between the level of endorsement of experiential avoidance and emotion regulation coping functions. The current study did not capture engagement in alternative problematic behaviours (e.g., substance misuse). Given that such behaviours may serve as an effective short-term strategy for experiential manipulation (Chawla & Ostafin, 2007), further work would benefit from a more nuanced sample characterisation, including the assessment of divergent manifestations of emotion regulation.

To the best of our knowledge, this is the first study to examine self-defined coping functions, rather than coping styles, in relation to lifetime self-harm and self-harm recency and frequency. Taken together, results indicate

that reappraisal and approach coping functions may be important protective factors in self-harm. After adjusting for affect, in multivariate analyses, higher levels of reappraisal coping were associated with less recent self-harm and higher levels of approach coping with lower lifetime frequency of self-harm. Unlike many static risk factors, functional coping is, by nature, dynamic. Transactional accounts consider coping responses to be context and time dependant – rather than viewing coping behaviours and cognitions as dispositional styles. Thus, inherent to functional coping is the notion of change; coping is modifiable. This has implications for clinical practice and suggests coping which an individual believes allows them to: (i) directly confront problems faced (approach), and (ii) readdress the problems faced and reinterpret the meaning of a situation (reappraisal) (Ferguson & Cox, 1997) may be particularly important intervention targets. Results of the multivariate analysis indicate that experiential avoidance can differentiate those with and without a lifetime history of self-harm. In univariate analysis, experiential avoidance was also predictive of recency and lifetime frequency. This suggests that experiential avoidance may be an important transdiagnostic processes in self-harm, regardless of suicidal intent.

In the current study, approach and reappraisal coping functions were highly correlated. This has implications for the conceptualisation of coping. While Cox and Ferguson (1991; 1997) outline four related, yet qualitatively distinct, coping dimensions, alternative conceptual frameworks delineate coping processes into divergent dimensions (Lazarus & Folkman, 1984; Pearlin & Schooler, 1978). As Ferguson and Cox (Ferguson & Cox, 1997) note, the functional dimensions outlined within the FDC may be subsumed within an

alternative, more parsimonious account. When considering the implications of the current results it may be particular pertinent to note Holahan & Moos' (1990, 1991) conceptualisation of transactional coping. Within this conceptualisation, two functional coping dimensions (approach vs. avoidance) are outlined, with reappraisal-type items subsumed within the problem-focused, approach function. This may account for the large effect size observed. Within this framework, a positive correlation between emotion regulation and approach coping would also be anticipated. While such a relationship was observed in our study, the effect size was small. However, this may be explained by the phrasing of the emotion regulation items, as outlined above.

As hypothesised, increased endorsement of experiential avoidance and avoidance coping functions was associated with increased negative affect. Reduced approach, reappraisal and, contrary to expectations, emotional regulation coping functions were associated with increased negative affect. A pattern of relationships with converse directionality is observed in positive affect. In line with the hypothesis, older age was related to increased approach and reappraisal coping as well as decreased experiential avoidance tendency and functionally avoidant coping. Older participants also reported significantly higher levels of emotion regulation coping.

While mixed intent or varying degrees of ambivalence is commonly reported in self-harm (Kapur et al., 2013; Orlando et al., 2015), it is important to note that the proportion of participants in this study who endorse only non-suicidal behaviour is unknown. An extension of this work would therefore be to explore the distribution of intent (e.g., how many participants endorse only

self-harm with no suicidal intent; how many participants endorse suicidality etc.), as well as the intent histories of participants (e.g., what proportion of respondents have a lifetime history of suicidal behaviours, but have recently engaged in only non-suicidal self-harm).

When interpreting these findings, it is important to note the nature of the sample. A key advantage of the study is the large, non-clinical sample. The majority of empirical support for the EAM (Chapman et al., 2006), and the model's theoretical foundations, are derived from the literature focused on self-harm exclusively in the context of Borderline Personality Disorder. As the model was developed to apply at a general level across various populations, and given the increasing concern regarding self-harm in non-clinical populations (Hasking et al., 2008; Lloyd-Richardson et al., 2007), it is important to extend current knowledge by exploring coping and emotional avoidance dynamics, and testing the model's assertions, in broader community samples.

A large majority of participants had a lifetime history of self-harm (88.1 %) which is markedly higher than rates typically reported for self-harm (Hawton et al., 2002; Kirtley et al., 2015) and NSSI (Swannell et al., 2014) in non-clinical research. This is a result of a deliberate recruitment strategy in order to achieve a large enough sample of people with a history of self-harm to meaningfully explore recency and frequency, with adequate power and without collapsing data into arbitrarily defined categories (e.g. 6 months, 12 months) (Brown et al., 2007).

Despite efforts to recruit a diverse sample, the sample achieved contained a large proportion of recent, high frequency self-harm; 65.3% had self-harmed in the last month. Therefore, while considering 'lifetime' engagement, for many this was very recent, or in fact current, engagement. This is important when considering 'recovery' and the dynamics that may underpin it: while the results suggest that coping dynamics and levels of emotional avoidance differ dependant on whether an individual has ever engaged in self-harm, caution is advised in the strength given to these claims. It is less clear if, and how, the relationships between variables may differ when considering more long-term resolution of self-harm engagement. Future work should seek to recruit a more varied sample in terms of the volume and recency of behaviour engagement.

2.4.1 Limitations

The primary limitation of the work is the cross-sectional nature of the study, precluding the ability to draw conclusions regarding causality. While the study offers a preliminary consideration of coping function and experiential avoidance in relation to the recency and frequency of self-harm, longitudinal research is optimally placed to explore these dynamics more fully. Such research offers the potential to address the current lack of clarity regarding how functional coping dynamics and non-acceptance of internal negative experiences may map to behaviour change. Research exploring coping which an individual believes will: (i) allow them to deal directly with a stressor, and/or (ii) allow them to reinterpret or construct the problem faced, may be particularly important. Moreover, in addition to insight into temporal

dynamics, such investigations would permit the exploration of interactions with proposed moderators, such as distress tolerance (Chapman et al., 2006). Importantly, prospective work may help partial out psychological context. That is, while self-harm is a symptom of distress, it can occur in the context of a range of psychological disorders, including, but not limited to, BPD, anxiety, major depression, substance abuse and oppositional defiant or conduct disorder (Gratz & Gunderson, 2006; Nock et al., 2006). The ability to adjust for psychological context may be important given the demonstrated relationship between psychopathology and experiential avoidance (Berking et al., 2009).

The current study considers the recency and frequency of self-harm independently. While this offers novel insight, future research may benefit from the exploration of the combined effects of recency and frequency. For example, equivalent overall lifetime frequency may be reported by an individual who previously self-harmed yet has not done so for some years, and by an individual who currently self-harms often. Arguably, it could be expected that the dynamics underlying these situations may be divergent. The duration of time over which an individual has engaged in self-harm (i.e., time since first self-harm) and any effect this may have on the associations between self-harm, experiential avoidance and coping functions, also warrants future attention.

Although the study recruited a community sample, this sample was not representative. A disproportionate number of participants were under 25 years of age (88.9%) and female (74.9%). It would be interesting to test the replicability of findings in an older, or more diverse, sample.

Finally, the study is limited by its reliance on mono-method, self-report assessment. The ability to accurately report on internal experiences may be confounded by an individual's aptitude for accessing states, and willingness to engage with aversive experience. A reluctance, or difficulty in doing so, is likely to be marked in those with heightened tendencies for experiential avoidance. Thus, multimodal assessment may be optimal, with the inclusion of behavioural and/or experimental paradigms adding additional strength to protocols investigating experiential avoidance tendencies (Salter-Pedneault et al., 2004).

2.5 Conclusions

Notwithstanding these limitations, the study offers novel insight into the relationship between self-harm, experiential avoidance and coping function, expanding on the existing literature to consider the recency and frequency of self-harm engagement.

2.6 Summary

This study investigated the relationship between experiential avoidance, coping and the recency and frequency of self-harm, in a community sample (*N* = 1,332; aged 16-69 years). Participants completed online, self-report measures assessing self-harm, momentary affect, experiential avoidance and coping in response to a recent stressor. Participants who had self-harmed reported significantly higher levels of experiential avoidance and avoidance coping, as well as lower levels of approach, reappraisal, and emotional regulation coping, than those with no self-harm history. Moreover, more recent self-harm was associated with lower endorsement of approach, reappraisal and emotion regulation coping, and also higher levels of both avoidance coping and experiential avoidance. Higher experiential avoidance and avoidance coping also predicted increased lifetime frequency of self-harm. Conversely, increased approach and reappraisal coping were associated with a decreased likelihood of high frequency self-harm. Although some of the effects were small, particularly in relation to lifetime frequency of self-harm, overall the results suggest that experiential avoidance tendency may be an important psychological factor underpinning self-harm, regardless of suicidal intent (e.g. including mixed intent, suicidal intent, ambivalence), which is not accounted for in existing models of self-harm.

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Chapter 3. DEALING WITH DIFFICULT DAYS: FUNCTIONAL COPING DYNAMICS IN SELF-HARM IDEATION AND ENACTMENT

- The study reported in Chapter 2 indicated that endorsement of functional coping dynamics differentiated those with differing lifetime self-harm histories (yes; no). There were also relationships between both the recency and frequency of self-harm and the examined coping functions. This suggests that functional coping dynamics may be an important psychological factor in self-harm.
- Chapter 3 builds upon the research presented in Chapter 2 by exploring whether functional coping dynamics differentiate differing self-harm experiences (no self-harm; thoughts of self-harm; self-harm), in response to a given stressor, in those with a lifetime history of self-harm (a high risk group).

For a more comprehensive understanding of the processes underlying self-harm and suicide, research must address not only ideation to enactment but also behaviour change (e.g., pauses in behaviour engagement). Typically, research into ideation and enactment has categorised participants based on life-time histories of self-harm thoughts and behaviours. Ideation is readily acknowledged by clinicians as having a central role in the treatment and management of self-harm (Lynch & Cozza, 2009; Nixon & Heath, 2009), so it is important to have targeted research to understand ideation in those with a history of self-harm as well as those who have *only ever* thought of harming. That is to say, in those who have a history of self-harm, what predicts self-

harm experience (ideation, enactment, or lack thereof) in response to a given stressor.

3.1 Introduction

A large proportion of the extant literature primarily addresses distal risk factors for self-harm and/or suicide. Consequently, relatively little is understood about the *whys* of self-harm (Townsend, 2014), or indeed the *whens*. Many studies have relied on the use of long-term retrospective measures that aggregate experiences, whether in the assessment of self-harm, e.g., "Please estimate the number of times *in your life* you have intentionally (i.e., on purpose) performed each type of non-suicidal self-harm…" (Klonsky & Glenn, 2009; Klonsky & Olino, 2008), "Have you *ever* battered or hit yourself?'', ''Have you *ever* cut yourself?'' (Glazebrook et al., 2016; Hawton et al., 2002), or the assessment of coping, e.g., "…indicate *what you generally do* and feel, when you experience stressful events…" (Carver et al., 1989). To increase both our understanding of self-harm and our capacity to respond appropriately, it is of paramount importance to unpack the more proximal factors surrounding self-harm thoughts and behaviours.

The extant literature suggests that the nature of the stressor itself may be associated with responding. For example, interpersonal stressors (e.g., disputes with family; conflicts within friendships; fall outs with girlfriend/ boyfriend) are consistently reported by those presenting to A&E following self-harm (Townsend et al., 2015) and are independent predictors of suicide attempts in young adults (Johnson et al., 2002). While such research evidence elucidates characteristics of a life stressor that may be associated with self-

harm, little is known about the significance of coping characteristics. Despite a notable shift in conceptualisation of psychopathology to focus on behavioural functionality (Armey et al., 2011), and an increased understanding that purpose and meaning are paramount in understanding the complex and dynamic nature of self-harm (Shaw, 2006), functional coping dynamics are an, as yet, under-researched area.

Elucidating the functional coping dynamics underpinning self-harm thoughts and behaviours – that is to say, what purpose a person believes their coping behaviours and cognitions will serve; their self-defined coping goals – may be an important next step in understanding the *whens* of self-harm. Developing a clearer understanding of the functions that self-harm experiences serve, in response to a given stressor, has important clinical implications; while the nature of the stressor cannot be altered, coping responses are inherently dynamic (Ferguson & Cox, 1997). Functional coping dynamics therefore represent potentially modifiable targets for intervention. Indeed, developing alternative coping strategies is evidenced as a key theme in 'naturalistic' cessation of self-harm engagement (Gelinas & Wright, 2013). Research evidence is paramount in determining *which* coping functions may be particularly relevant when considering supporting alternative coping. Therefore, developing a more comprehensive account of the functional coping processes underpinning self-harm thoughts and behaviours (or lack thereof) may be an important step in understanding how to best facilitate alternative coping and support change.

3.1.1 Self-harm ideation versus self-harm enactment

Despite key theoretical advances (e.g., the Interpersonal-Psychological Theory of Suicidal Behaviour: Joiner, 2005; the Integrated Motivational-Volitional Model of Suicidal Behaviour: O'Connor, 2011a, 2011b; O'Connor & Kirtley, 2018) our ability to predict, explain, prevent and differentiate between self-harm thoughts and behaviour is arguably unsatisfactory at present (Klonsky & May, 2014; Stack, 2014). Many people have feelings or experiences that relate to self-harming (e.g., thoughts, urges, mental imagery). For some, these experiences may occur before, or around, an episode of self-harm. Others have feelings or experiences that relate to self-harm without engaging in self-harm behaviours – they may 'just' think about self-harming. This may be because of effortful resistance or other factors (e.g., the intensity or duration of experiences) (Klonsky & Glenn, 2008; Nock, Prinstein, & Sterba, 2009).

Understanding the transitions between ideation (thoughts) and enactment (behaviours) has been identified as a key hurdle in suicide prevention efforts and a priority research area (Klonsky & May, 2014). Within this, it is paramount to appreciate that transitions are a dynamic process. Those who have self-harmed may not always continue to do so; self-harming may discontinue across time, or individuals may have periods free from harming/ thoughts of harming (Brown et al., 2007; Wadman et al., 2017). Therefore, transitions do not necessarily follow a uni-directional progression from ideation to enactment.

3.1.2 Functional coping dynamics and change in self-harm

Cox and Ferguson (1991) outline four qualitatively distinct coping functions: (i) emotional regulation coping, which allows an individual to deal with the emotional consequences of a problem, (ii) approach coping, which permits a person to deal directly with the problem, (iii) reappraisal coping, readdressing and reinterpreting the meaning of a situation, and (iv) avoidance coping, allowing an individual to ignore the existence of the situation.

Research evidence (Study 1; Chapter 2) indicates that functional coping dynamics may be an important psychological factor in understanding self-harmful behaviour, with approach and reappraisal coping functions being related to both lifetime self-harm status and the recency of behaviour engagement (Nielsen, Sayal, et al., 2016). To the best of our knowledge, to date no research has explored self-defined, functional coping dynamics within an ideation to enactment framework. If self-harm is understood as affording people a means of coping (Evans, Hawton, & Rodham, 2005; Warm, Murray, & Fox, 2003), then developing a comprehensive account of the wider functional dynamics surrounding these thoughts and behaviours is fundamental in grounding research efforts and guiding clinical practice. Increased understanding of the relationship between coping and self-harm holds the potential to inform interventions which not only help people to survive but also support them to thrive. Further to this, elucidating novel variables that differentiate self-harm thoughts from actions holds additional clinical utility.

3.1.3 Current study

The present study aims to explore whether coping predicts self-harm experience (ideation, enactment, or lack thereof) in those who have a history of self-harm. The study focuses on the perceived functional dynamics of cognitive and behavioural coping employed in response to a stressor. Rather than exploring typical responses, and thus aggregating experiences, the study considers responding to a specific, recent stressor chosen by participants. Given that self-harm experiences are transient and fluctuating phenomena, the study restricts its focus to participants who had self-harmed in the last 3 months and investigates responses to most significant stressor *in that period*. This aimed to eliminate the often-noted limitations of long-term, retrospective self-reporting. Given that self-harm is often repeated (Owens et al., 2002) and that many individuals with self-harm histories experience strong (and often frequent) urges to engage in self-injurious behaviours (Washburn et al., 2010), the timeframe also aimed to ensure that reporting of self-harm ideation and enactment would be of sufficient frequency to facilitate meaningful exploration.

There is increasing concern about self-harm in non-clinical populations (Hasking et al., 2008; Lloyd-Richardson et al., 2007; McMahon et al., 2014). While some who have experience of self-harm may come into contact with mental health services, either directly (i.e., for input related to self-harm) or indirectly (i.e., accessing treatment for other reasons), this does not reflect the experience of the majority (Hawton, Rodham, Evans, & Weatherall, 2002; Sourander, Helstelä, Haavisto, & Bergroth, 2001). Therefore, the study recruited a community-based sample.

The aims of the study were to:

1) Describe the frequency of self-harm ideation and enactment in response to recent stressors, in participants with recent self-harm.
2) Explore whether functional coping dynamics can differentiate self-harm experiences in response to the stressor (no self-harm; ideation; enactment).

3.2 Method

3.2.1 Participants

One thousand, one hundred and fifty-seven (N = 1,157) participants took part in the study. Participants were a sub-sample of participants in a larger study of self-harm and were eligible for inclusion if they reported a recent history of self-harm (last 3 months). Participants varied in age between 16 and 49 years (M = 18.21, SD = 3.24). Eighty-two participants did not disclose their age. The majority of the sample was female (79.9%; male, 9.4%; prefer not to say, 3.3%). Eighty-five participants (7.3%) did not indicate their gender.

3.2.2 Design and procedure

The anonymous, self-report questionnaires were administered online. Participants were recruited via e-mail listings (e.g., Self injury Support UK), the School of Psychology's Research Participation Scheme (University of Nottingham), and through social media (e.g., Twitter; Facebook). Recruitment was not topic blind. The questionnaire was advertised as, "part of an on-going project investigating coping function and self-harm". Where appropriate,

undergraduate students received partial course credit to compensate for their participation.

The work received ethical approval from the University of Nottingham, School of Psychology Ethics Committee (Ref. 335R, 446, 262R). All participants provided written informed consent (via computer). The protocol did not allow for parental/legal guardian consent to be obtained. Therefore, only participants aged 16 years or older were eligible to participate.

3.2.3 Measures

3.2.3.1 Demographic factors

Age and gender demographics were captured.

3.2.3.2 Coping

Functional coping dynamics were assessed via the Functional Dimensions of Coping scale (FDC: Ferguson & Cox, 1997). The three-stage measure captures coping responses both qualitatively and quantitatively. Stages one and two of the scale permit participants to describe: (i) a specific stressful event they have experienced, and (ii) the coping responses (i.e., cognitions, behaviours) they employed in response to the stressor (free response). The present study focused on recent coping, therefore the FDC was restricted to the most stressful event in the last 3 months.

Stage 3 of the measure is a 16-item series of Likert measures assessing what the participant believed their coping responses would achieve. The scale assesses four functional coping dimensions: (i) approach functions (dealing directly with the problem, e.g., “To what extent did this/these activities allow

you to directly deal with the problem?"), (ii) avoidance (allowing the individual to ignore the existence of the situation, e.g., "To what extent did this/these activities allow you to avoid having to dealing directly with the situation?"), (iii) emotional regulation (dealing with the emotional consequences of a problem, e.g., "To what extent did this/these activities enable you to deal with any emotional upset caused by the event?") and, (iv) reappraisal functions (readdressing and reinterpreting the meaning of a situation, e.g., "To what extent did this/these activities allow you to grow and develop as a person?").

Item scores are summed; higher scores indicate higher endorsement of coping function. The measure exhibits good internal reliability and construct validity. Internal consistency for FDC subscales in the present study was acceptable to good (approach, $\alpha = .810$; avoidance, $\alpha = .763$; emotion regulation, $\alpha = .790$; reappraisal, $\alpha = .845$).

3.2.3.3 Depressive and anxious symptomatology

Depressive and anxious symptomatology experienced across the previous week was assessed via the Hospital Anxiety and Depression Scale (HADS: Zigmond & Snaith, 1983). The 14-item scale is a valid and reliable measure of emotional disorder and is frequently used in both hospital and community settings. Item scores are summed; higher scores indicate increased symptomatology. Internal consistency for subscales in the present study was adequate to good (depression, $\alpha = .822$, anxiety, $\alpha = .754$).

3.2.3.4 Self-harm

3.2.3.4.1 Eligibility

Initial eligibility for inclusion into the study was determined via a modified Inventory of Statements about Self-Injury (ISAS: Klonsky & Glenn, 2009; Klonsky & Olino, 2008). In the original format the ISAS captures only non-suicidal self-injury. In the current study the need for an absence of suicidal intent was omitted, as taxometric procedures and consistency tests indicate that the latent structure of self-harmful behaviours is dimensional rather than dichotomous (Orlando et al., 2015). As such, non-suicidal self-injury may not represent a discrete typology.

All participants indicated that they had, in their life, "intentionally (i.e., on purpose)" engaged in at least one of the following behaviours: cutting; biting; burning; carving; pinching; pulling hair; severe scratching; banging/hitting self; interfering with wound healing; rubbing skin against rough surfaces; sticking self with needles, or swallowing dangerous substances. As the study sought to understand how functional coping dynamics relate to ideation and enactment in those with a recent history of self-harm, participants were eligible for inclusion only if they reported at least one self-harm episode having occurred within the 3 months preceding participation.

3.2.3.4.2 Self-harm status in response to a recent stressor

Self-harm status, in response to the stressor reported, was determined by the qualitative coping responses captured by stage 2 of the Functional Dimensions of Coping scale (FDC: Ferguson & Cox, 1997). The measure assessed both

thoughts and behaviours employed in response to the stressor. Participants were classified into three groups: ‘no self-harm’, ‘self-harm enactment’, and ‘self-harm ideation’ (in response to the stressor described). Group memberships were mutually exclusive.

3.2.3.4.2.1 ‘Self-harm enactment’

Participants who reported ‘self-harm’ and/or indicated engaging in one or more of the following behaviours in response to the stressor were indicated in the ‘self-harm enactment’ group: banging/hitting self; biting; burning; carving; cutting; wound picking; needle-sticking; pinching; hair pulling; rubbing skin against rough surfaces; severe scratching and overdosing. The list was adapted from the Inventory of Statements about Self-Injury (ISAS: Klonsky & Glenn, 2009; Klonsky & Olino, 2008)

This definition of self-harm excluded eating pathology (e.g., restrictive eating; binge/purge behaviour, etc.) and substance use/misuse (e.g., alcohol; illicit substances, etc.) unless further specified as an intentional overdose. If participants noted their behaviour as a suicide attempt, this was recorded.

3.2.3.4.2.2 ‘Self-harm ideation’

Participants were included in this group if they reported thoughts, urges, or a drive to self-harm but did not report acting on these cognitions. This included participants who reported actively resisting an urge to engage and those who wanted to harm but were prevented by circumstance (e.g., when access to means was restricted, when they were not alone, etc). If participants noted a

wish to die in relation to their thoughts of harming, or a wish to be dead, this was recorded.

3.2.4 Data analysis

Data were analysed using SPSS V21 for Windows. Kolmogorov-Smirnov and Shapiro-Wilk tests indicated that all independent variables were not normally distributed. Therefore, non-parametric analyses were conducted throughout. Furthermore, the use of non-parametric statistics negates concerns regarding markedly unequal group sizes. Spearman's Rho correlations were conducted to explore the relationship between depressive and anxious symptomology and functional coping dynamics across the sample. A series of (univariate) Kruskal-Wallis tests were conducted to directly compare the self-harm groups (no self-harm vs. ideation vs. enactment) in terms of anxious and depressive symptomatology and the endorsement of functional coping dynamics. Mann Whitney U tests were performed to establish where the differences lay. Following this, coping functions and depressive and anxious symptomatology were entered into hierarchical multinomial logistic regression analyses (reference group, no self-harm; reference group, self-harm enactment). This analysis was selected given that: (i) the data were skewed, requiring a non-parametric approach, (ii) there were more than two groups in the dependant variable, and (iii) a means of assessing whether coping functions improved the ability to predict group membership (no self-harm; ideation; enactment) after adjusting for depression and anxiety was sought. In the first step, depressive and anxious symptomatology were entered. In the second step, coping functions (approach; avoidance; emotion regulation; reappraisal) were also

included in the model. Odds ratios (OR) indicate the likelihood of group membership (ideation vs. no self-harm; enactment vs. ideation; ideation vs. enactment).

3.3 Results

3.3.1 Preliminary analyses

Participants reported a diverse range of stressors. Example events reported included family members receiving medical diagnoses, being contacted by a perpetrator of past sexual abuse, dealing with exams and debt, and taking public transport.

Few participants disclosed a wish to die or to be dead (4.7%, *n* = 54). Suicide attempts were also infrequently reported in response to the index stressor (1.5%, *n* = 17). Given (i) the lack of adequate statistical power to meaningfully explore suicide attempts and self-harm independently, and (ii) recent research indicating that self-harm occurs along a continuum of suicidal intent (Orlando et al., 2015), groups were collapsed. All analyses consider self-harm ideation and enactment regardless of intent. Over half of participants had self-harmed in response to the stressor they described (56.2%, *n* = 650). A minority reported self-harm ideation (4.3%, *n* = 50), and 39.5% (*n* = 457) reported no thoughts of self-harm or self-harm behaviour (no self-harm).

Participants within the sample had established histories of self-harm, reporting engagement over 2–34 years (*Mdn* = 4.00, IQR = 3.00). The majority of the sample reported high frequencies of behaviour engagement (*Mdn* = 310.00, IQR = 772.50): over 40% of participants reported 101-500 self-harm

episodes during their lifetime (42.3%, *n* = 489), with a further 450 participants having self-harmed more than 500 times (38.9%). Around 20% of participants reported engaging 100 times or less (1-5 episodes, 0.7%, *n* = 8; 6-50 episodes, 8.5%, *n* = 98; 51-100 episodes, 9.7%, *n* = 112).

A series of Spearman's Rho correlations were conducted to explore the relationship between depressive and anxious symptomatology and functional coping dynamics across the sample. Depressive symptomatology was positively associated with the endorsement of avoidance coping, $r(1,157) = .108$, $p < .001$ and negatively associated with both approach, $r(1,157) = -.231$, $p < .001$ and reappraisal coping functions, $r(1,157) = -.306$, $p < .001$. A consistent pattern of significant associations were observed for anxious symptomatology (avoidance, $r(1,157) = .059$, $p = .046$; approach, $r(1,157) = -.178$, $p < .001$; reappraisal, $r(1,157) = -.217$, $p < .001$).

3.3.2 Do coping functions differentiate between self-harm groups?

3.3.2.1 Kuskall-Wallis and Mann Whitney U tests

The Kruskal-Wallis tests indicated statistically significant differences between self-harm groups (no self-harm; ideation; enactment) in depressive and anxious symptomatology and on all four coping functions (see Table 8). A series of Mann Whitney U tests were performed to establish where the differences were. The no self-harm group was lower in depressive symptoms and higher in reappraisal coping than those in the ideation group. The no self-harm group was also lower in depression, anxiety, avoidance and emotion regulation coping than the enactment group and higher in approach and reappraisal coping. Participants who self-harmed in response to the stressor they described

(enactment) reported higher endorsement of emotion regulation and avoidance coping than those who thought of harming but did not act (ideation) (see Figure 4).

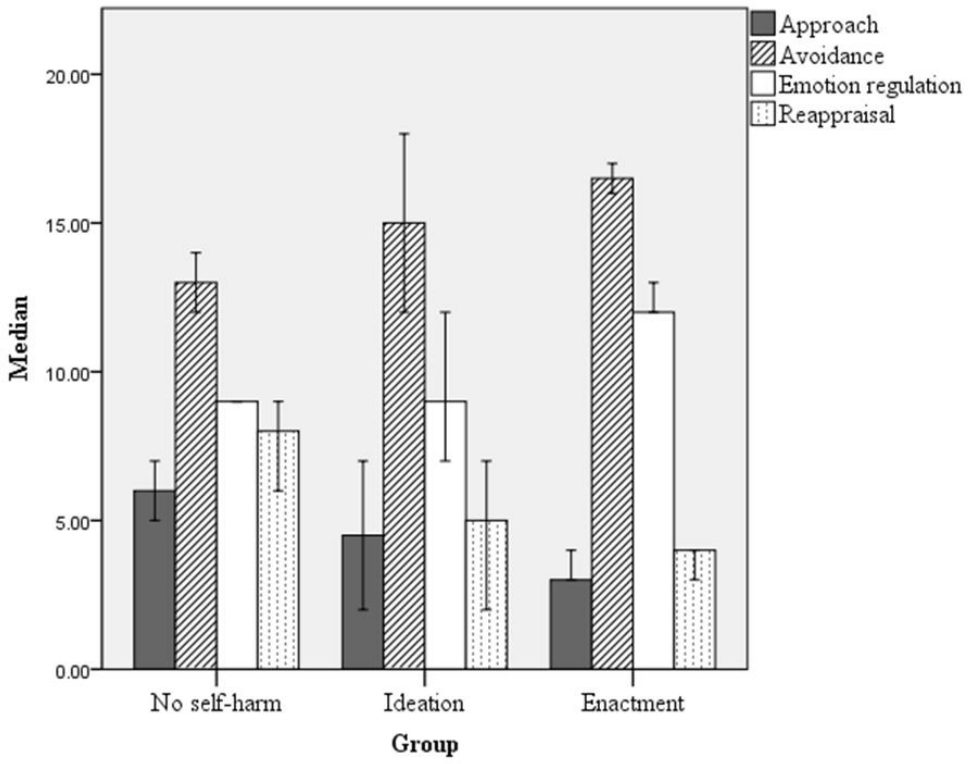


Figure 4. Median endorsement of coping functions across self-harm groups (no self-harm vs. ideation vs. enactment). Error bars = 95% CI.

3.3.2.2 Hierarchical multinomial logistic regression

Results of the hierarchical multinomial logistic regression analyses are presented in Table 9. In step one, anxious and depressive symptomatology were entered. This model was statistically significant ($\chi^2(4) = 66.07$, $p < .001$), but explained only a small amount of variability (Pseudo R^2; Cox and Snell = .06; Nagelkerke = .07; McFadden = .04). Both self-harm groups (ideation and

enactment) were significantly different in depressive symptomatology to those who did not have self-harm thoughts or behaviours in response to the stressor described (no self-harm). There was no significant difference between the ideation and enactment group in level of depressive symptoms reported. The three groups were not significantly different in anxious symptomatology.

In the second step, functional coping dynamics were added to the regression model. This resulted in a substantial Pseudo R^2 increase (Cox and Snell = .21; Nagelkerke = .26; McFadden = .14; Model χ^2 (12) = 273.68, $p <$ .001). Participants in the enactment group were significantly different from those in the no self-harm group in depressive symptomology and the endorsement of approach, emotion regulation and reappraisal coping. Those in the no self-harm group also differed from the ideation group in reappraisal coping. Emotion regulation coping distinguished ideation and enactment groups.[16]

[16] One thousand and thirty-eight participants indicated that they were aged 25 years or younger. All analyses were re-run to include just these young people. No differences in the direction of effects were observed when older participants were excluded for the analyses. However, the difference in endorsement of reappraisal coping between ideation and no self-harm groups fails to reach statistical significance (p = .067).

Table 8. Descriptive statistics, Kruskal-Wallis and Mann Whitney U tests comparing anxious and depressive symptomatology and the endorsement of functional coping dynamics between no self-harm (*n* = 457), ideation (*n* = 50) and enactment (*n* = 650) groups.

Variable	No self-harm (N)		Ideation (I)		Enactment (E)		χ^2	Significant differences (*r*)
	Mdn	IQR	*Mdn*	IQR	*Mdn*	IQR		
Depression[a]	9.00	7.00	11.00	6.00	11.00	6.00	57.23***	N<I (-.14)**; N<E (-.22)***
Anxiety[a]	14.00	6.00	14.50	4.25	15.00	5.00	19.25***	N<E (-.13)***
Approach[b]	6.00	10.00	4.50	7.00	3.00	7.00	54.49***	N>E (-.22)***
Avoidance[b]	13.00	12.00	15.00	13.00	16.50	8.00	58.80***	N<E (-.23)***; I<E (-.08)*
Emotion regulation[b]	9.00	8.00	9.00	8.00	12.00	7.00	79.45***	N<E (-.26)***; I<E (-.13)***
Reappraisal[b]	8.00	13.00	5.00	8.00	4.00	7.00	69.92***	N>I (-.11)*; N>E (-.25)***

Note. Mdn = Median, IQR = Inter-Quartile Range, [a] Depressive and anxious symptomatology, as measured by the HADS, [b] Functional coping dynamics, as measured by the FDC scale, * denotes significance at $p < .05$, ** denotes significance at $p < .01$,*** denotes significance at $p < .001$. All analyses survive Bonferroni correction for multiple comparisons ($\alpha = .016$).

Table 9. Hierarchical multinomial logistic regression exploring whether functional coping dynamics, anxious and depressive symptomatology predict self-harm experience, in response to a recent stressor.

Step		Ideation vs. No self-harm			Enactment vs. No self-harm			Ideation vs. Enactment		
		B	SE	OR (95% CI)	B	SE	OR (95% CI)	B	SE	OR (95% CI)
1	Depression[a]	.12	.04	1.13** (1.04-1.21)	.10	.02	1.10*** (1.07-1.14)	.02	.04	1.02 (.95-1.10)
	Anxiety[a]	-.04	.05	.96 (.88-1.05)	.03	.02	1.03 (.99-1.07)	-.07	.05	.94 (.86-1.02)
2	Depression[a]	.09	.04	1.10* (1.01-1.19)	.07	.02	1.07*** (1.03-1.11)	.03	.04	1.03 (.95-1.11)
	Anxiety[a]	-.05	.05	.96 (.87-1.05)	.03	.02	1.03 (.98-1.07)	-.07	.05	.93 (.85-1.02)
	Approach[b]	.03	.05	1.03 (.94-1.14)	-.05	.02	.95* (.91-.99)	.08	.05	1.09 (.98-1.20)
	Avoidance[b]	.01	.03	1.01 (.96-1.06)	.01	.01	1.01 (.99-1.04)	-.01	.03	.99 (.94-1.05)
	Emotion regulation[b]	.04	.04	1.04 (.97-1.13)	.16	.02	1.18*** (1.14-1.22)	-.12	.04	.89*** (.83-.96)
	Reappraisal[b]	-.09	.04	.92* (.85-.99)	-.08	.02	.92*** (.89-.96)	-.01	.04	.99 (.92-1.08)

Step 1, Model $\chi^2(4) = 66.07$, $p < .001$, Pseudo R^2 (Cox and Snell = .06, Nagelkerke = .07, McFadden = .04)

Step 2, Model $\chi^{22}(12) = 273.68$, $p < .001$, Pseudo R^2 (Cox and Snell = .21, Nagelkerke = .26, McFadden = .14)

Note. B = Estimate, OR= Odds Ratio, SE = Standard Error, [a] Depressive and anxious symptomatology, as measured by the HADS, [b] Functional coping dynamics, as measured by the FDC scale, * denotes significance at $p < .05$, ** denotes significance at $p < .01$,*** denotes significance at $p < .001$.

3.4 Discussion

The present study is, to the best of our knowledge, the first exploration of functional coping dynamics in relation to self-harm ideation and enactment. Our results suggest that functional coping dynamics may be differentially associated with self-harm ideation and enactment in those with recent self-harm. This is important, given that understanding the transitions between ideation and enactment has been identified as a critical frontier in suicide prevention (Klonsky & May, 2014).

Results of the univariate analyses indicated that avoidance and emotion regulation coping functions differentiated ideation and enactment groups, as well as the enactment group, from those with no self-harm experience in relation to the stressor described. Multivariate regressions indicate that functional coping dynamics make a significant contribution to variability explained, beyond anxious and depressive symptomatology. Reappraisal coping distinguished those with self-harm experiences in relation to the identified stressor (ideation and enactment groups) from those with no self-harm experience. Approach and emotion regulation coping distinguished those who self-harmed (enactment) from those with no self-harm experience in response to the stressor described. Importantly, the endorsement of emotion regulation coping also distinguished those who thought of harming (ideation) from those who acted (enactment). However, the observed odds ratios were small.

In addition to exploring whether functional coping dynamics differentiate self-harm experiences in response to the stressor, the study aimed

to describe the frequency of self-harm ideation and enactment in response to recent stressors, in participants with recent self-harm. There is a paucity of research proving 'basic' information regarding the natural phenomenology of self-harmful thoughts and behaviours (Nock et al., 2009), including information as to when self-harm experiences are more likely to occur. That said, given that: (i) self-harm represents a means of coping, (ii) all participants had self-harmed in the last 3 months, and (iii) this study considered coping following the most stressful event within that three-month timeframe, it could be anticipated that both self-harm thoughts and behaviours would be highly prevalent within the responses collated. Additionally, the sample was comprised of relatively high frequency and established self-harm. This is pertinent given that theoretical accounts (Chapman et al., 2006) and empirical evidence (Wadman et al., 2017) suggest that self-harm can become habitual and ingrained with repetitive engagement, with the potential for perceived dependency to develop. However, despite the sample profile and high risk of repetition, 39.5% of participants reported no self-harm experience(s) in response to their most significant stressor. That is to say, they did not report self-harming, nor did they report thinking about harming. Even with a recent history of self-harm, self-harming is not an inevitable outcome when an individual is exposed to a significant stressor.

This is an interesting finding, demonstrating that, for a significant minority, self-harm happened not in response to the identified major stressor but in response to an event they considered 'less significant'. This could be taken to highlight the unpredictable nature of self-harm thoughts and behaviours and the need for awareness that seemingly innocuous events may

have a profound impact as a tipping point for enaction. Furthermore, it could suggest that, for many people, self-harm thoughts and behaviours may be a consequence of an endurance or accumulation of more minor day-to-day stressors, such that a seemingly less significant event serves as 'the straw that breaks the camel's back'. This may be in line with theoretical accounts which posit distress tolerance as a key moderator in self-harmful behaviour engagement (Chapman et al., 2006). This finding has practical implications; it may not be possible for an individual to anticipate more vulnerable periods, given that they may occur in response to day-to-day stressors as well as more 'significant' events. Therefore, it is of paramount importance that individuals have ready access to sources of support and that both informal and formal support networks are able to identify and respond appropriately to signs of distress. The co-production of a safety plan may aid in this, given that this facilitated process empowers individuals to explore alternative coping strategies, plan possible coping routes in advance, and identify and utilise external sources of support in moments of difficulty or crisis (Stanley & Brown, 2012).

3.4.1 Limitations

While the study offers novel insight into the functional coping dynamics underpinning self-harm ideation and enactment in those with recent self-harm, it is important that a number of key limitations are noted. The primary limitation of the work is the cross-sectional nature of the study, precluding the ability to make inferences regarding causality; the collection of 'real time' data

and longitudinal protocols would be optimally placed to explore these dynamics more fully.

The study defined 'recent' self-harm as behaviours in the last 3 months. This timeframe was determined to minimise the biases associated with long-term retrospective recall, while optimising the probability of capturing a range of experiences, so as to meaningfully compare ideation, enactment, and no self-harm groups. However, it is important to acknowledge that there is no agreed definition of 'recent' self-harm. Indeed, previous research has operationalised 'recent' using a range of arbitrarily defined cut-offs (Brown et al., 2007). It is unclear whether adopting an alternative recency threshold would affect the pattern of significant findings. Therefore, future research exploring these dynamics would make a novel contribution to the extant literature.

The study aimed to recruit a diverse community-based sample. While the study was advertised on a variety of platforms (e.g., e-mail listings; social media; poster advertisements) it is not known what proportion of the sample were Psychology undergraduates. The age of participants ranged from 16 to 49 years. However, the majority were young (*m* =18.21 years) and female (79.9%). This may reflect the disproportionate prevalence of self-harm in this age group (Hawton, Saunders, & O'Connor, 2012; Madge et al., 2008). However, it is important to explore the relationship between functional coping dynamics and self-harm ideation and enactment across other demographic groupings, not least as both gender (Avero & Calvo, 1999; Karekla & Panayiotou, 2011) and age (Nielsen et al., 2016) (see Chapter 2) are associated with the endorsement of coping. Further, when considering the nature of the sample, it is pertinent to note that while the length of time since first episode

self-harm provides useful descriptive information in so far as it typifies the current sample, information was not collected about periods of abstinence or breaks in self-harm enactment within given histories. Indeed, fluctuation and pauses within engagement histories are common. Moreover, there is a lack of consensus regarding how, or indeed whether, these fall within conceptualisations of recovery (Wadman et al., 2017).

Few participants in the current study reported a wish to die or a wish to be dead (4.7%) and suicide attempts were also infrequently reported (1.5%). Investigating targeted samples of individuals with high suicidality and those actively seeking to resist urges to self-harm may be a valuable extension of the extant research. Further, while the sample size was large, the achieved self-harm ideation-only group was relatively small. Previous researchers have reported a marked difficulty in recruiting adequate numbers of participants who think about harming themselves, but have never acted (Hooley et al., 2010). It is therefore of interest to note that this difficulty is also apparent when considering those who have a lifetime history of self-harm but are being recruited for their recent ideation. The small odds ratios observed in this current study, despite the large overall sample size, highlight the need for adequately powered research. Therefore, it is pertinent to consider why this difficulty in recruiting to ideation groups prevails.

While tentative, a number of potential explanations are noted. Firstly, the sample size may, in part, be a product of the definition of 'recent' employed. Research evidence suggests that, if repeated, there is often a very short time period between self-harm episodes (Owens et al., 2015). Therefore, it could be suggested that the three-month timeframe increases the probability

of capturing enactment. If true, an extended (e.g., 6 months, 12 months) definition of 'recent' self-harm may be more optimally placed to capture ideation.

Secondly, the sample characteristics may be attributable to self-selection biases. The questionnaire was advertised as, "part of an on-going project investigating *coping function and self-harm*". While the information provided highlighted the aim was to understand a range of self-harm experiences, researchers conducting similar work may wish to explicitly state this in the study title. Employing a staged, more targeted advertising approach may also aid in the recruitment of participants with a range of self-harm related experiences e.g., (i) 'general advertising' (e.g., Research opportunity: Emotions and wellbeing), (ii) 'mid-level advertising', aiming to recruit those with thoughts of harming (e.g., Research opportunity: Emotion, self-harm thoughts and behaviour) and (iii) 'direct advertising', aiming to recruit those who have self-harmed. This could include consideration of recency of self-harm (e.g., Research opportunity: Have you self-harmed in the last month? Research opportunity: Recent self-harm, emotions and wellbeing).

Finally, given the lack of conceptual clarity, participants may be less certain about what constitutes a self-harm 'thought' than an episode of self-harm behaviour, and consequently be less confident in reporting these experiences. While anecdotal, in our experience it is not uncommon for participants in laboratory-based research to comment that they are not sure if an experience 'counts', when reporting self-harm thoughts and urges. Often this apparent uncertainty appears rooted in the frequency or intensity of the experience. Therefore, increased conceptual clarity and the development of a

more nuanced account of key constructs may be an important step in research aimed at understating the process underpinning, and transitions between, ideation and enactment.

The findings of the present study must be interpreted within the context of our operationalisations. The definition of ideation included participants who reported actively resisting an urge to engage and those who were wanting to self-harm but were prevented by circumstance (e.g., when access to means was restricted, when they were not alone, etc). While the present study did not afford the possibility to explore these potential subgroups, due to the small numbers reporting ideation, future research should consider whether divergent coping dynamics underpin these profiles.

3.5 Conclusions

Notwithstanding these limitations, this study offers novel insight into the relationship between functional coping and self-harm, in those with recent self-harm histories. Additionally, and for the first time, the study explores these relationships in both self-harm ideation and self-harm enactment. Taken together, results indicate that functional coping dynamics may be differentially associated with self-harm thoughts and behaviour. This study also contributes novel insights into the *'whens'* of self-harm, suggesting that seemingly innocuous events may have a profound impact as a tipping point for enaction. This has implications for clinical practice, including the co-production of safety plans.

3.6 Summary

Participants (*N* = 1,157; community sample) aged 16−49 years (*M* = 18.21, *SD* = 3.24) with a recent history of self-harm (past 3 months) reported how they coped in response to their most significant recent stressor (3 months). Almost 40% of participants, all of whom had self-harmed in the last 3 months, had no self-harm experience (thoughts or behaviours) in response to their most significant stressor in that timeframe. In multivariate analysis, adjusting for symptoms of depression and anxiety, reappraisal coping was predictive of self-harm thoughts. Approach, emotion regulation and reappraisal coping were predictive of self-harm behaviour. Emotion regulation coping differentiated self-harm ideation and enactment groups. Taken together, the findings suggest that functional coping dynamics may be differentially associated with self-harm ideation and enactment. This is important, given that understanding the transitions between ideation and enactment has been identified as a critical frontier in suicide prevention. Further, results indicate that seemingly innocuous events may have a profound impact as tipping points for enaction; this has implications for clinical practice, including the co-production of safety plans.

The research presented in Chapter 4 is published in:

Nielsen, E., Sayal, K. & Townsend, E. (2017). Functional coping dynamics and experiential avoidance in a community sample with no self-injury vs. non-suicidal self-injury only vs. those with both non-suicidal self-injury and suicidal behaviour. *International Journal of Environmental Research and Public Health, 14, 575.* https://doi.org/ 10.3390/ijerph14060575

Chapter 4. FUNCTIONAL COPING DYNAMICS AND EXPERIENTIAL AVOIDANCE IN A COMMUNITY SAMPLE WITH NO SELF-INJURY VS. NON-SUICIDAL SELF-INJURY ONLY VS. THOSE WITH BOTH NON-SUICIDAL SELF-INJURY AND SUICIDAL BEHAVIOUR

- The research presented in Chapter 2 indicated that experiential avoidance may be an important psychological construct in self-harm, regardless of the suicidal intent associated with the behaviour.
- Chapter 2 showed that participants with a lifetime history of self-harm reported significantly higher levels of avoidance coping, as well as lower levels of approach, reappraisal, and emotional regulation coping, when compared with those who had never self-harmed.
- Data presented in Chapter 3 indicated that in individuals with a recent history of self-harm, functional coping dynamics were predictive of self-harm experience (or lack thereof), in response to a specific recent stressor. Reappraisal coping was predictive of self-harm thoughts (ideation). Approach, emotion regulation, and reappraisal coping were predictive of self-harm behaviour (enactment). Furthermore, emotion regulation coping differentiated self-harm ideation and enactment groups.

- All studies so far presented within this thesis explore self-harm, regardless of suicidal intent. This 'continuum conceptualisation' encompasses NSSI, suicidal behaviour, and behaviour with mixed or ambivalent intent. This is consistent with recent taxometric analyses of the nature of suicidal intent (Orlando et al., 2015) and the conceptualisation of self-harm adopted in UK Clinical Guidelines (National Collaborating Centre for Mental Health, 2011; National Institute for Health and Care Excellence, 2004).
- Whether functional coping dynamics vary between participants with differing intent histories remains unexplored.
- It is important to understand how moderators of stress or psychological distress (e.g., coping) correspond to suicide intent history (e.g., Non-Suicidal Self-Injury only vs. Non-Suicidal Self-Injury plus Suicidal Behaviour), given indications that those who engage exclusively in non-suicidal self-injury may exhibit different psychological profiles to those engaged in self-injury of other intent (Victor & Klonsky, 2014).
- This is also important for theory-testing. The EAM focuses exclusively on *non-suicidal* self-injury; "self-injurious behavior that occurs in the absence of any intent to die" (Chapman et al., 2006, p. 372), given evidence of "differences in the functions" of non-suicidal self-injury and suicidal behaviours (SB) (p. 373).
- Therefore, beyond the research presented thus far, this chapter investigates the relative importance of experiential avoidance and functional coping dynamics between groups with differing intent histories.

4.1 Introduction

To further elucidate the role avoidance may play in suicidal behaviour amongst those with a history of self-injury, the current study investigates whether ordered effects are observed between those with no history of self-injury ("Control"), those with a history of non-suicidal self-injury only ("NSSI"), and those with a history of non-suicidal self-injury and suicidal behaviour ("NSSI + SB"). Inherent to the study is the premise that groups with no self-injury history ("Control"), non-suicidal self-injury only ("NSSI"), and non-suicidal self-injury plus suicidal behaviour ("NSSI + SB") reflect a hierarchy or continuum of intent. We argue that this assumption is justified given that recent taxometric analyses of non-suicidal and suicidal self-injury demonstrate a continuum of intent (Orlando et al., 2015).

As some have argued that suicidal behaviour is an "extreme form of emotional avoidance" (Chiles & Strosahl, 2005), it is hypothesised that the ordered effects will be as follows: those with a history of suicidal behaviour plus non-suicidal self-injury will be higher in experiential avoidance than those with a history of non-suicidal self-injury only, who, in turn, will be higher in experiential avoidance than those with no history of self-injury (i.e., NSSI + SB > NSSI > Control).

Given the outlined centrality of aversive emotions, including: (i) the appraisal of these experiences as intolerable, and (ii) the drive to ameliorate these feelings and the situations that cause them, it is hypothesised that those reporting suicidal behaviour plus non-suicidal self-injury (NSSI + SB) will be

higher in avoidance and emotion regulation coping than those with a history of only non-suicidal self-injury (NSSI), who will, in turn, be higher in endorsement than those with no history of self-injury (avoidance: Control < NSSI < NSSI + SB; emotion regulation: Control < NSSI < NSSI + SB). Conversely, it is hypothesised that those with no history of self-injury will be higher in reappraisal and approach coping than those with a history of NSSI only, who, in turn, will be higher than those with a history of suicide behaviour plus non-suicidal self-injury (reappraisal: Control > NSSI > NSSI + SB; approach: Control > NSSI > NSSI + SB).

4.2 Materials and methods

4.2.1 Participants

A total of 318 adults completed the study. Five participants (1.6%) reported suicidal behaviour, but no history of NSSI (suicidal behaviour only). As there was insufficient statistical power to analyse participants reporting suicide attempt only, these five participants were removed from analysis. Therefore, a final sample size of 313 was achieved and all subsequent analyses reported pertain to this sample.

The majority of the sample were female (n = 252, 80.5%); 53 participants indicated that they were male (17.4%) and 8 participants indicated "other" or did not provide information (2.6%). Participants ranged in age from 16–49 years. However, the majority were young adults (M = 19.78, SD = 3.48). Five participants did not indicate their age (1.6%).

Of the 313 participants, 109 (34.8%; ‘Control’) participants reported no lifetime self-injury history. Over half of the sample had a history of non-suicidal self-injury only (53.0%; *n* = 166; ‘NSSI’), with a further 38 (12.1%; ‘NSSI + SB’) participants reporting a history of both non-suicidal self-injury and suicidal behaviour.

4.2.2 Procedure

The questionnaires were administered both online and in paper format. The research project was advertised across a range of online platforms (e.g., Twitter; Reddit; Facebook), the School of Psychology’s Research Participation Scheme (RPS; University of Nottingham), and poster advertisements across University campuses (University of Nottingham). The majority of participants (87.5%) were recruited via the University’s Research Participation Scheme. Participants were not screened for, nor excluded on the basis of, receiving clinical intervention(s), and no information regarding psychiatric diagnoses was obtained. Recruitment was not topic blind. Participants were not provided an inconvenience allowance. However, eligible participants (first year, undergraduate Psychology students at the University of Nottingham) received RPS points. This represents partial course credit.

The work received ethical approval from the University of Nottingham, School of Psychology Ethics Committee (Ref. 262R, 335R). All participants provided written informed consent (via computer in the online protocol). The protocol did not allow for parental/legal guardian consent to be obtained. Therefore, only participants aged 16 years or older were eligible to participate.

All participants were provided with signposting information to sources of emotional support (e.g., Samaritans, UK).

4.2.3 Measures

4.2.3.1 Demographic factors

Age and gender demographics were collected.

4.2.3.2 Self-injury

Section one of the Inventory of Statements about Self-Injury (ISAS: Klonsky & Glenn, 2009; Klonsky & Olino, 2008) captures lifetime frequency of 12 non-suicidal self-injurious behaviours enacted "intentionally (i.e., on purpose) and without suicidal intent" (banging/hitting self; biting; burning; carving; cutting; wound picking; needle-sticking; pinching; hair pulling; rubbing skin against rough surfaces; severe scratching; swallowing chemicals). Additionally, the measure includes an "other" category, permitting free report of behaviour(s).

4.2.3.3 Suicidality

Two items assessed engagement in suicidal behaviour. The first captured lifetime engagement ("Have you ever engaged in suicidal behaviours?": "yes"/ "no"), the second captured the recency of this behaviour ("If you have selected YES to the above question, please indicate the last time you have done this": "this week"; "this month"; "over one month ago but less than six months"; "six months or more"). Single-item assessment capturing the presence or absence of suicidal behaviour are frequently used in suicide science (Nock et al., 2008). Indeed, many commonly employed assessment tools (e.g., The Youth Risk

Behavior Survey [YRBS]; The World Health Organization [WHO] Composite International Diagnostic Interview [CIDI]) contain single-item measures of suicide attempt, from which our question was adapted.

4.2.3.4 Experiential avoidance

Experiential avoidance can be considered as both a situation-specific behavioural 'choice' (internal or overt) and a dispositional tendency (Gámez et al., 2011). The current study assesses dispositional avoidance tendency across a number of broad domains: emotions, thoughts, memories, behaviours, autonomic sensations and pain. This multidimensional approach reflects research evidence suggesting that differing domains of experiential avoidance are differentially associated with psychopathology (Gámez et al., 2011). Therefore, multidimensional assessment has the potential to provide novel information regarding which aspects of avoidance are most commonly exhibited in, or are able to differentiate between, the three study groups. The measurement of dispositional, rather than situational, experiential avoidance is particularly suitable for this study given that we assessed for lifetime NSSI and suicidal behaviour.

The Multidimensional Experiential Avoidance Questionnaire (MEAQ: Gámez et al., 2011) assesses endorsement of experientially avoidant strategies, considering behaviours, thoughts, and emotions. The 62-item measure captures experiential avoidance tendency across six dimensions: (i) behavioural avoidance (overt, situational avoidance of physical discomfort and distress which prevents new learning e.g., "I go out of my way to avoid uncomfortable

situations"), (ii) distress aversion (lack of openness towards internal experiences and non-acceptance of distress e.g., "The key to a good life is never feeling any pain"), (iii) procrastination (the delaying of anticipated distress e.g., "I try to put off unpleasant tasks for as long as possible"), (iv) distraction/suppression (the ignorance or suppression of distress e.g., "When something upsetting comes up, I try very hard to stop thinking about it"), (v) repression/denial (lack of awareness about distress, distancing and dissociating from distress e.g., "I am able to 'turn off' my emotions when I don't want to feel"), and (vi) distress endurance (willingness to persevere in the face of distress in the pursuit of values e.g., "I am willing to suffer for the things that matter to me"). Each item is assessed on a six-point Likert scale ("strongly disagree" to "strongly agree"). Dimensions load on a single factor.

Two items are reverse scored. Total score is calculated as the sum of scales, with distress endurance scale total reverse scored (behavioural avoidance + distress aversion + procrastination + distraction/suppression + repression/denial dimensions + [77 − distress endurance]). Higher total score indicates higher experiential avoidance. Internal consistency for all MEAQ subscales in the present study was good (behavioural avoidance, $\alpha = 0.873$; distress aversion, $\alpha = 0.868$; procrastination, $\alpha = 0.857$; distraction/suppression, $\alpha = 0.863$; repression/denial, $\alpha = 0.862$; distress endurance, $\alpha = 0.855$; overall, $\alpha = 0.925$).

4.2.3.5 Coping

The Functional Dimensions of Coping scale (FDC: Ferguson & Cox, 1997) captures, both qualitatively and quantitatively, how individuals respond to difficult situations and what they believe their cognitions and behaviours will achieve. Sections one and two of the measure allow the participant to describe (i) the most stressful recent event they have experienced (in the previous 3 months), and (ii) the coping responses (i.e., cognitions, behaviours) employed to deal with this. Section three consists of a 16-item series of seven-point ("not at all" to "very much so") Likert measures assessing the perceived function of these coping responses.

The measure captures four dimensions of coping: (i) approach (dealing directly with the problem e.g., "To what extent did this/these activities allow you to understand something of the nature of the problem, from which you could behaviour to deal directly with it?"), (ii) avoidance (allowing the individual to ignore the existence of the situation e.g., "To what extent did this/these activities distract you from thinking about the problem?"), (iii) emotional regulation (dealing with the emotional consequences of a problem e.g., "To what extent did this/these activities allow you to manage the distress and upset caused by the event?"), and (iv) reappraisal functions (readdressing and reinterpreting the meaning of a situation e.g., "To what extent did this/these activities allow you to step back and look at the problem, in a different way, such that it seemed better?").

Item scores are summed; higher scores indicate higher endorsement of coping function. Internal consistency for FDC subscales in the present study was good (approach, $\alpha = 0.862$; avoidance, $\alpha = 0.828$; emotion regulation, $\alpha = 0.805$; reappraisal, $\alpha = 0.740$).

4.2.4 Data analysis

Data were analysed using SPSS v21 for Windows. All functional coping dynamics and distress aversion, procrastination, repression/denial and distress endurance subscales of the MEAQ were not normally distributed. Therefore, non-parametric tests were conducted. Cases were excluded pairwise throughout.

A series of Jonckheere–Terpstra trend tests were conducted to explore the predicted ordered effects within functional coping dynamics and experiential avoidance. This rank-based, non-parametric test assesses for the presence of pre-defined, ordered differences in medians in a stated direction. Thus, Jonckheere–Terpstra trend tests differ from alternative non-parametric approaches as they test a priori hypotheses regarding the relative endorsement of a construct between groups (e.g., $A > B > C$ or $A < B < C$), rather than merely testing whether statistically significant differences are observed (e.g., groups A, B, and C entered into a Kruskal–Wallis test) (Hollander et al., 2014; Pirie, 1983). When there is a priori ordering, Jonckheere–Terpstra trend tests have more statistical power than alternative non-parametric analyses (e.g., Kruskal–Wallis test). Jonckheere–Terpstra tests have previously been

successfully employed to assess ordered effects in suicide science (Kirtley et al., 2015).

4.3 Results

4.3.1 Preliminary analyses

Of the 313 participants, 109 (34.8%; 'Control') participants reported no lifetime self-injury history. Over half of the sample had a history of non-suicidal self-injury only (53.0%; *n* = 166; 'NSSI')[17], with a further 38 (12.1%; 'NSSI + SB') participants reporting a history of both non-suicidal self-injury and suicidal behaviour.

Of those who had ever self-injured, the majority had done so 50 times or less (1–5 times, *n* = 26, 12.7%; 6–50 times, *n* = 82, 40.2%). Twenty-three participants (11.3%) reported 51–100 episodes of self-injury, 50 participants (24.5%) reported engaging in non-suicidal self-injurious behaviours 101–500 times, and 23 individuals reported a lifetime history greater than 500 behaviours (11.3%). Considering the recency of non-suicidal self-injury, around one third of participants reporting lifetime histories of non-suicidal self-

[17] All participants who indicated positively to an ISAS assessed form of NSSI and have never engaged in suicidal behaviours were included in the 'NSSI' group, regardless of the number of reported episodes of NSSI. All analyses presented in text utilise this classification criterion. Analyses were subsequently re-run, including only those participants who had engaged in NSSI behaviours more than five times in the 'NSSI' group. The pattern of results remained unchanged for functional coping dynamics. In experiential avoidance significant ordered effects are observed in behavioural avoidance (Control < NSSI < NSSI + SB [n = 284], T_{JT} = 13,577.00, Z = 2.12, p = 0.034) and distress endurance (Control > NSSI > NSSI + SB [n = 282], T_{JT} = 13,344.50, Z = 2.06, p = 0.039), in addition to the significant ordered effect observed in the repression/denial facet presented in the body of the manuscript.

injury (*n* = 59; 37.3%) had self-injured within the 6 months prior to study completion (this week, *n* = 24, 15.2%; this month, *n* = 13, 8.2%; 1–6 months, *n* = 22, 13.9%). Of those who reported having ever engaged in suicidal behaviours, around one quarter of participants (*n* = 10; 23.7%) reported this having occurred within the last 6 months (this week, *n* = 1, 2.6%; this month, *n* = 1, 2.6%; 1–6 months, *n* = 8, 21.1%). Recency data was missing for one participant.

To test for between-group differences, method versatility (number of lifetime methods of self-injury), lifetime frequency, and recency of self-injury were entered into binary logistic regression. These factors did not predict group membership (NSSI; NSSI + SB, see Table 10).

4.3.2 Ordered effects in experiential avoidance

In order to assess whether experiential avoidance exhibited significant ordered effects, a series of Jonckheere–Terpstra trend tests were conducted. The ordered effect in overall endorsement of experiential avoidance did not reach statistical significance, $p = 0.058$. However, examination of the measure subscales indicated a significant ordered effect in repression/denial (see Figure 5).

Table 10. Binary logistic regression exploring whether versatility of methods, lifetime frequency, and recency of self-injury predict self-injury group (NSSI vs. NSSI + SB).

Characteristic	95% CI for OR			
	OR	Lower	Upper	*p*
Versatility[a]	0.998	0.990	1.007	0.696
Lifetime Frequency	1.000	0.997	1.002	0.767
Recency	1.000	1.000	1.000	0.838

R^2 = 0.026 (Cox & Snell), 0.039 (Nagelkerke). Model χ^2 (3) = 3.862, *p* = 0.277.

Note. [a] number of methods. Participants who indicated that they had ever self-injured engaged in an average of 3.69 methods of self-injury; CI: confidence interval; OR: odds ratio.

4.3.3 Ordered effects in functional coping dynamics

As per the analyses conducted to explore the endorsement of experiential avoidance across groups, a series of Jonckheere–Terpstra trend tests were conducted in order to assess whether functional coping dynamics exhibited significant ordered effects. Results indicate statistically significant ordered effects in approach: Control > NSSI > NSSI + SB (*n* = 309), T_{JT} = 17,279.50, Z = 4.13, *p* < 0.001 (Median endorsements were 15.00 [IQR = 5.75], 13.00 [IQR = 8.00] and 9.00 [IQR = 9.00] respectively, see Figure 5), avoidance coping: Control < NSSI < NSSI + SB (*n* = 308), T_{JT} = 15,736.50, Z = 2.37, *p* = 0.018 (Median endorsements were 12.00 [IQR = 8.00], 14.00 [IQR = 9.00] and 14.00

[IQR = 9.00] respectively), emotion regulation: Control > NSSI > NSSI + SB (n = 309): T_{JT} = 12,103.00, Z = −1.97, p = 0.048 (Median endorsements were 13.00 [IQR = 4.00], 12.00 [IQR = 6.00] and 12.00 [IQR = 8.00] respectively) and reappraisal coping: Control > NSSI > NSSI + SB (n = 309), T_{JT} = 17,223.50, Z = 4.01, p < 0.001 (Median endorsements were 20.50 [IQR = 6.75], 17.00 [IQR = 11.00] and 12.00 [IQR = 13.00]).

Here, it is important to note that the observed ordered effect in emotion regulation coping was in the opposite direction to that hypothesised. Further, while the ordered effects observed in avoidance and emotion regulation coping are statistically significant, the NSSI and NSSI + SB medians remain tied. Consequently, the observed effect sizes are most compelling for approach (r = 0.23) and reappraisal (r = 0.23) coping.

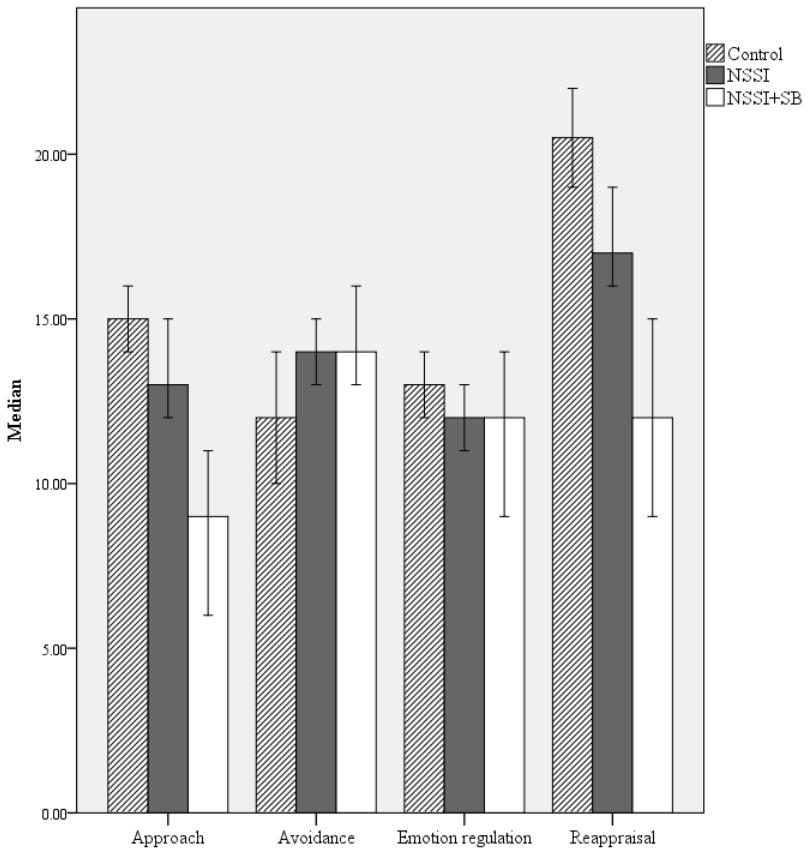


Figure 5. Median endorsement of functional coping dynamics across self-injury groups (Control vs. NSSI vs. NSSI + SB). Error bars = 95% CI.

Table 11. Descriptive statistics and Jonckheere–Terpstra trend tests comparing experiential avoidance between Control, NSSI and NSSI + SB groups.

Variable	Control (C)		NSSI		NSSI + SB		T_{JT}	*Z*	*p*	Ordered Effect
	Mdn	IQR	*Mdn*	IQR	*Mdn*	*I*QR				
Experiential avoidance (total) [a, b]	119.00	51.00	129.00	47.75	128.50	49.00	13,655.00	1.90	0.058	-
Behavioural avoidance [a, c]	36.00	13.50	38.00	11.00	39.00	15.50	15,512.00	1.89	0.058	-
Distress aversion [a, d]	44.00	13.50	47.00	15.00	43.00	14.25	14,902.50	1.42	0.157	-
Procrastination [a, c]	26.00	10.00	26.00	9.00	25.50	10.50	13,716.50	−0.38	0.707	-
Distraction/suppression [a, e]	28.00	8.00	27.00	9.00	26.50	15.00	13,205.00	−0.85	0.397	-
Repression/denial [a, f]	30.00	13.50	33.00	14.00	38.50	15.00	15,812.00	2.93	0.003 **	C < NSSI < NSSI + SB
Distress endurance [a ,g]	46.00	8.00	46.00	11.75	43.00	15.25	12,254.00	−1.814	0.070	-

Note..[a] As measured by the MEAQ; ** denotes significant at <0.01; [b] n = 291 [c] n = 310; [d] n = 308; [e] n = 309; [f] n = 305; [g] n = 307; IQR: interquartile range, *Mdn*: median.

4.4 Discussion

The current study is, to the best of our knowledge, the first to explore ordered effects in both experiential avoidance and functional coping dynamics between individuals with self-injury histories of differing intent (NSSI; NSSI + SB) and control participants with no history of self-injury. Results indicate that the endorsement of functional coping dynamics differs between self-injury groups. As self-injury group status (NSSI; NSSI + SB) was not predicted by versatility of methods, frequency, or recency of self-injury, it is unlikely that these factors can explain the above ordered effects, thus increasing our confidence that the observed differences relate to differences in intent history between groups.

As hypothesised, avoidance coping was higher in the NSSI and NSSI + SB groups than in controls. Converse ordered effects were observed in approach and reappraisal coping (Control > NSSI > NSSI + SB). Again, this is congruent with the hypothesised trends. However, contrary to our expectations, those with no history of self-injury (Control) were higher in emotion regulation coping than those with a history of NSSI or NSSI + SB; Control > NSSI > NSSI + SB. The directionality of trend observed should be considered in light of the measurement employed. While the Functional Dimensions of Coping scale (Ferguson & Cox, 1997) pertains to assess transactional functional coping accounts – what the person believed their coping responses to a given situation would achieve – the items contained within the emotion regulation scale (e.g., "To what extent did this/these activities allow you to manage the distress and upset caused by the event?") arguably relate more readily to the efficacy of

these coping efforts, rather than the underpinning motivational dynamics (Nielsen, Sayal, et al., 2016) (see Chapter 2).

The observed effect sizes are more compelling for approach (r = 0.23) and reappraisal (r = 0.23) coping. These effect sizes are comparable to those reported elsewhere (Nielsen et al., 2017a; Nielsen, Sayal, et al., 2016) (see Chapter 2 and Chapter 3). It is unsurprising that the observed effect sizes are modest, given that the FDC assesses transactionally defined coping in response to a single, recent event.

Considering dispositional experiential avoidance, contrary to our hypothesis, no significant ordered effect was observed for total MEAQ score. This could be seen to challenge the assertion that suicidal behaviour can be conceptualized as an "extreme form of emotional avoidance" (Chiles & Strosahl, 2005) (p. 59). When considering the constituent facets of experiential avoidance assessed in the multidimensional measure, again, no significant ordered effects were observed in distress aversion, procrastination, distraction/suppression scales or distress endurance scales. However, significant ordered effects were observed in repression/denial (Control < NSSI < NSSI + SB). This indicates that those with a history of both non-suicidal self-injury and suicidal behaviour report higher levels of distancing and dissociating from distress when compared to those with a history of non-suicidal self-injury only and, in turn, those with no self-injury history. This is important for clinicians who carry out assessments following an episode of self-injury to be aware of. However, we must remain mindful that inferences of causality cannot be drawn.

The MEAQ considers responding to experiences such as autonomic sensations and pain. Alternative, and commonly employed, assessments of experiential avoidance do not necessarily pertain explicitly to these domains, focusing more on emotionality (e.g., Acceptance and Action Questionnaire-II: Bond et al., 2011). Our findings are suggestive of the potential importance of assessing dispositional experiential avoidance across a number of domains, given the differing patterns of significance observed across dimensions.

Our results may have important implications for intervention planning. It is crucial that all those who self-injure and are in distress are met with compassionate and appropriate care, not least given the strong association of these behaviours with death by suicide (regardless of the suicidal intent of self-injury) (Hawton, Bergen, et al., 2015). Taken together, our results suggest that functional coping dynamics might be important factors to consider in future research to inform clinical practice. Further to this, our results indicate that exploring experiential avoidance – as an indiscriminate response – may have clinical utility. While several existing treatment programs for suicidal behaviour aim to reduce avoidance (e.g., Mindfulness-Based Cognitive Therapy; MBCT), our results suggest which facets of experiential avoidance may be principle targets for intervention planning. Considering the observed ordered effects in dispositional experiential avoidance, results indicate the importance of attending to aversive states and accepting negative experiences, particularly in the pursuit of goals and values.

4.4.1 Limitations

The current study must be interpreted within the context of a number of limitations. The primary limitation of the work is the cross-sectional design, precluding the ability to make inferences regarding causality. Furthermore, the study relied on self-report methodology. This may be subject to recall biases, which may be particularly marked when reporting on items falling within the repression and denial facet of experiential avoidance, given that these dissociative tendencies are considered to be largely outside of an individual's awareness (Gámez et al., 2011). Future research may seek to address these limitations by employing longitudinal designs and/or comparing the endorsement of self-reported items and performance on behavioural measures.

The majority of the participants within the current study were young and recruited via the University's Research Participation Scheme. In future research, it will be important to evaluate if these findings generalise to more diverse samples, especially given evidence that endorsement of experiential avoidance and functional coping is correlated with age (Nielsen, Sayal, et al., 2016) (see Chapter 2). Future work may also benefit from assessing psychiatric diagnoses; exploring whether the observed ordered effects remain consistent across individuals with different primary diagnoses would further self-injury science.

The current study compared those with a history of self-injury both with and without a history of suicidal behaviour. It is acknowledged that some people who engage in suicidal behaviours may have no history of non-suicidal

self-injury. To provide a comprehensive account of experiential avoidance and functional coping dynamics in relation to NSSI and suicidal behaviour, the exploration of this fourth group (SB only) would be of paramount importance. Future research could therefore extend the current study by sampling in such a way that the necessary statistical power is achieved to perform further, more nuanced, subgroup analyses. This could be achieved by a number of means, including utilising targeted sampling strategies (e.g., recruiting via support services/forums) and sampling from clinical services. This may also increase the sample size of the NSSI + SB group, which, in the current study, remains moderate. The addition of an SB only group, in conjunction with an increased NSSI + SB group size, may allow for clearer elucidation of ordered effects for avoidance and emotion regulation coping.

While the current study outlined recency and frequency to typify the sample, we did not explore the endorsement of experiential avoidance and coping functions between individuals with different recency of experiences. This research could therefore be extended to explore differing characteristics of self-injury (e.g., recency; frequency; method) in subgroup analyses. This more comprehensive analysis would provide valuable insight into the psychological and functional coping dynamics underpinning change in these complex behaviours.

The study employed a single-item assessment of suicidal behaviour (with an additional item probing recency). While recent epidemiological reviews indicate that the majority of research in the field employs single-item assessment (Nock et al., 2008), and our question was adapted from two

commonly employed instruments (YRBS; CIDI), it is acknowledged that multiple item questioning may prove more comprehensive, revealing both false-positive and false-negative responding (Millner et al., 2015). This is something to consider when planning future research.

4.5 Conclusions

Notwithstanding these limitations, the study offers a novel contribution to the literature addressing the role of experiential avoidance and coping in self-injurious behaviour, for the first time exploring ordered effects comparing those with no self-injury history, those with a history of non-suicidal self-injury only, and those with a history of non-suicidal self-injury and suicidal behaviour. Taken together, these results suggest that functional coping dynamics (approach; avoidance; emotion regulation; reappraisal) differentiate those with differing self-injury histories (Control vs. NSSI vs. NSSI + SB). Further, the study elucidates which component aspects of experiential avoidance may also be important; while no significant ordered effects were observed in total MEAQ score, a significant trend was observed in the repression/denial dimension of experiential avoidance. This has implications for future clinical research and treatment planning – specifically perhaps for exploring the prioritisation of treatment targets in ‘third wave’ interventions aimed at promoting acceptance of aversive internal experiences and decreased indiscriminate avoidant behaviours.

4.6 Summary

This community-based survey (N = 313; female, 81%; ages 16–49 years, M = 19.78, SD = 3.48) explored self-reported experiential avoidance and functional coping dynamics in individuals with: (i) no self-injury history (controls); (ii) a history of NSSI only; and (iii) a history of NSSI + SB. Jonckheere-Terpstra trend tests indicated that avoidance coping was higher in the NSSI and NSSI + SB groups than in controls. Emotion regulation was higher in controls than those with a history of self-injury (NSSI and NSSI + SB). Approach and reappraisal coping demonstrated significant ordered effects such that control participants were higher in these coping dynamics than those with a history of NSSI only, who, in turn, were higher than those with a history of NSSI + SB (Control > NSSI > NSSI + SB). Endorsement of the reappraisal/denial facet of experiential avoidance was most pronounced in those with a history of NSSI + SB (Control < NSSI < NSSI + SB). No significant ordered effects were observed for other dimensions of experiential avoidance. Understanding how the endorsement of functional coping dynamics, and which components of experiential avoidance, vary between groups with differing self-injury intent histories has important implications for intervention and treatment planning.

Chapter 5. UNDERSTANDING FUNCTIONAL COPING DYNAMICS IN SELF-HARM THOUGHTS AND BEHAVIOURS: A LONGITUDINAL, REPEATED DAILY DIARY STUDY

- Studies presented in this thesis so far have shown that: (i) functional coping dynamics are related to the recency and frequency of self-harm (Study 1; Chapter 2), (ii) functional coping dynamics are differentially associated with self-harm ideation, enactment, or no self-harm experience in response to a recent (past 3 months) stressor, in those with a recent (past 3 months) history of self-harm (Study 2; Chapter 3), and (iii) functional coping dynamics differentiate groups with differing intent histories (Control; NSSI; NSSI + SA) (Study 3; Chapter 4).
- These studies all examine between group effects.
- It is not known the extent to which functional coping dynamics are associated with self-harm risk across short time periods (e.g., 1 day rather than 3 months) or within individuals (within-persons).
- No research has explored functional coping dynamics using a repeated daily diary design. This study is the first to explore whether functional coping dynamics moderate the relationship between stress level and same-day self-harm experience (e.g., thoughts; urges; self-harm) (within-person), measured within the context of participants' daily lives.

5.1 Introduction

5.1.1 The need for real time and real-world assessment

Limited research has examined the acute, proximal factors related to self-harm thoughts and behaviours (Littlewood et al., submitted). Indeed, it is estimated that less than 1% of longitudinal and prospective research protocols designed to explore factors associated with suicidal thoughts and behaviours have included assessments across a period of less than 1 month (Franklin et al., 2017). Despite decades of research considering self-harm thoughts and behaviours at the between-persons (between groups) level – which provides information regarding who is generally at risk – limited work has explored when, and under what circumstances, *individuals* may be more likely to experience self-harm thoughts and when they are more likely to act on such thoughts (i.e., within-person changes that prospectively and proximally predict an increased likelihood of experiencing self-harm related experiences) (Victor et al., 2019).

Taken together, this may limit translation application as mental health professionals, as well as those directly experiencing self-harm thoughts and behaviours, are likely to be concerned with assessing, monitoring, understanding and intervening with acute risk and experience, rather than extended periods across many months or years. Developing a greater understanding of experiences as they evolve over short time periods (e.g., within a day) – including the factors associated with increased and decreased likelihoods of experiencing self-harm thoughts and/or acting upon those

thoughts – is highly likely to help determine the circumstances under which risk develops, and benefit clinical ability to recommend and organise appropriate, immediate care when people are in crisis or experiencing periods of increased stress (Littlewood et al., submitted). Additionally, it may inform the development of 'just-in-time' intervention (Victor et al., 2019). It may also be important for theory testing, theory refinement, and theory building (Russell, 2020; Victor et al., 2019).

Empirical evidence investigating self-harmful experiences using assessments over hours or days is scarce (but growing). Micro-longitudinal assessment (e.g., EMA; daily diary methodology) – involving the repeated sampling of an individual's momentary (or recent, same-day) experiences, in their naturalistic environment – allows *real time* (or near real time) assessment of *real world* self-harmful thoughts, experiences, and behaviours. That is to say, these methodologies elucidate experiential phenomenology, permit the assessment of cognitive, affective and/or behavioural responses – and the situational influences of these – as they are experienced, in day-to-day life (Bolger et al., 2003). Such methods hold particular promise in suicidology given that, as well as maximising ecological validity, increasing reliability (through repeated assessment) and minimising recall bias, micro-longitudinal assessment is particularly well-suited to the investigation of dynamic and/or micro processes (Ebner-Priemer et al., 2006; Nock et al., 2009; Shiffman et al., 2008).

5.1.2 Stress, coping, and self-harm – evidence from micro-longitudinal studies

The primary focus of extant micro-longitudinal work (EMA; daily diary studies) in the field has been on phenomenology (e.g., form; frequency of experience) and the affective and/or situational factors that lead up to or maintain NSSI (Czyz et al., 2019). A limited number of, predominantly recent, micro-longitudinal studies have explored coping in relation to self-harm. Typically, this has been exploring coping *with* self-harm thoughts and alternative behaviours or attempts to resist engaging in self-harm behaviour.

Czyz and colleagues (2019) used daily diary methodology to track the dynamic experiences of adolescents (N = 34, aged 13–17 years), who had been hospitalised due to their risk of suicide, across the 4-week period post discharge. The study sought to explore how young people coped with their suicidal thoughts or the stressful situations encountered (when suicidal ideation was not present that day). Coping was assessed across eight responses (dichotomised; "yes"/"no"): (i) talking to a family member, (ii) talking to a friend or another support person, (iii) talking to a therapist, counsellor, or doctor, (iv) contacting a crisis line, (v) trying to distract yourself with something else, (vi) trying to relax or do something comforting, (vii) trying to tell yourself something calming or positive, and (viii) trying a cognitive strategy that involved either (a) thinking about reasons for living (on days when suicidal thoughts were present) or (b) thinking differently about the

situation (on days when no ideation was reported)[18]. Young people provided daily ratings of the perceived utility of the coping strategies adopted and whether or not they have engaged in an act of non-suicidal self-injury to: (i) cope with thoughts of suicide (on days when suicidal thoughts were present), or (ii) cope with stressors faced or feelings (on days when ideation was not reported).

High levels of suicidal ideation were reported (24.4% of responses endorsed ideation) and two participants attempted to take their own lives during the study period. On over half of the days when non-suicidal self-injury was reported (58.3%; *n* = 21 days, by eight adolescents, which represents half [53.3%] of the total number reporting NSSI during the study period and a third [33.3%] of those reporting suicidal ideation), young people also reported co-occurring thoughts of ending their lives. Adolescents with co-occurring NSSI and ideation frequently reported that they had engaged in an act of non-suicidal self-injury to cope with their suicidal ideation (95.2%, *n* = 20 days). On days when young people reported no suicidal ideation (41.7%, *n* =15 days), they endorsed that they engaged in the act of self-injury "to manage negative feeling states and/or stressful situations" (p. 4) around three quarters of the time (73.3%, *n* = 11 days). The function(s) of NSSI on the remaining quarter of occasions was not captured within the research protocol (Czyz et al., 2019).

[18] These strategies were grouped into superordinate categories thematically. These were coping by: (a) relying on personal support (strategies i–ii), (b) relying on professional support (strategies iii–iv), (c) using a non-cognitive strategy (strategies v–vi), and (d) using a cognitive strategy (strategies vii–viii).

Overall, young people typically reported being self-reliant in terms of coping (79.4% of days), rather than relying on the support of others (67.5% of days), particularly professional support (20.3% of days; reported by 82.4% of sample). Within self-reliant coping, non-cognitive strategies (e.g., relaxation; distraction) were more frequently reported (76.7%) than cognitive strategies (55.3%) (Czyz et al., 2019).

While young people did not use less adaptive coping when they engaged in non-suicidal self-injurious behaviour(s) (i.e., within-person), those who utilised a greater number of coping strategies in general (i.e., between-person) had a lower probability of engaging in NSSI. Perceiving coping strategies as being helpful also decreased the probability of engaging in NSSI (within-person and between-person). Lower levels of suicidal ideation were also predictive of lower likelihood of engagement in acts of non-suicidal self-injury (within-person and between-person). There were no significant relationships between different coping strategies and engaging in NSSI at either within-person or between-person levels (Czyz et al., 2019).

Turner and colleagues (2019) investigated strategies that helped people (N = 60, aged 18–35 years) to resist NSSI thoughts and urges using a 2-week, daily diary format (with three monthly follow-ups for 1 year to look at prospective associations with thoughts, urges and future self-injury). Coping was assessed via the 15-item Coping Strategies Indicator (CSI; Amirkhan, 1990). The measure categorises coping responses as: (i) problem-focused, (ii) support-seeking, or (iii) avoidant. Stress encountered was measured via the 10-item Perceived Stress Scale (PSS; Cohen et al., 1983) which assesses

"unexpected or uncontrollable demands that result in feelings of being overwhelmed, angry, nervous, or stressed" (Turner et al., 2019, p. 1336). Perceived stress was assessed three times daily (morning, afternoon, evening). An averaged daily score was also calculated. Three NSSI ideation-related experience categories were coded: (i) fleeting thoughts, (ii) persistent thoughts, and (iii) intense urges[19]. Participants were asked whether they had engaged in an act of non-suicidal self-injury that day ("yes"/"no").

High rates of NSSI thoughts and urges were reported during the 2-week daily diary period. Participants reported fleeting thoughts on around half of the study days (48.3%) and most participants reported this experience at some point during the study period (92.0%). Intense urges to engage in an act of non-suicidal self-injury were reported on approximately one in five days (17.0%). Nearly two thirds of participants endorsed an intense urge to self-injure at some point during the study (65.0%). Persistent thoughts were reported less commonly and by fewer participants (11.0% of days; 48.0% of participants).

[19] Fleeting thoughts were assessed using a dichotomised, single-item, "Did you think of doing the following today (even if it was only a passing thought) – injuring yourself without intending to die?" rated once daily. Persistent thoughts and intense NSSI urges were measured using the ABUSI (Washburn et al., 2010). Persistent NSSI thoughts were defined as present (versus absent) if participants reported thinking about non-suicidal self-injury "Most of the time, or 3–6 times" or "Nearly all of the time, or more than 6 times" that day (Item 1), or thinking about NSSI or how they would injure themselves for "3–6 h" or "More than 6 h" that day (Item 3). Intense NSSI urges were rated as present (versus absent) if participants reported that they experienced NSSI urges that were "Intense, and difficult to control" or "Intense, and would have self-injured if able to" at their most severe point (Item 2), or that it was "Very difficult", "Extremely difficult" or "Impossible" to resist injuring themselves that day (Item 4). Participants completed the ABUSI once daily, retrospectively recalling thoughts and urges across three time periods (morning, afternoon, evening) (Turner et al., 2019, pp. 1335–1336).

NSSI ideation did not always lead to an act of self-injury; fleeting NSSI thoughts were not acted upon on three quarters of the days that they were reported (76.6%). Participants resisted acting upon persistent thoughts on nearly two thirds of days they occurred (63.0%). However, intense urges were more likely to be acted upon than not; participants successfully resisted acting on intense urges on 42.4% of days where they were reported (Turner et al., 2019).

NSSI thoughts (fleeting and persistent) and intense urges were positively associated with same-day perceived stress and avoidant coping. Intense urges were also negatively associated with perceived support. Considering same-day NSSI and participant-reported ability to not act upon their NSSI ideation, perceived stress predicted lower likelihood of successfully resisting acting on same-day fleeting NSSI thoughts, but not persistent thoughts or intense urges. Problem-focused coping predicted greater likelihood of refraining from an act of non-suicidal self-injury on days when participants reported same-day fleeting NSSI thoughts or same-day intense NSSI urges (but not same-day persistent NSSI thoughts). Conversely, greater perceived support was associated with a lower likelihood of refraining from an act of self-injury when intense NSSI urges (but not thoughts) were experienced on the same day. Support seeking and avoidant coping were not predictive of NSSI behaviour when experiencing same-day thoughts (fleeting or persistent) or intense urges (Turner et al., 2019).

Nock and colleagues (2009), in the first study of its kind in the field of suicide science, used EMA to assess the forms and functions of non-suicidal

and suicidal thoughts and behaviours as they happen. Over a 2-week study period, young people with a recent history of self-injury (*N* = 30, 12–19 years) completed signal-contingent (e.g., responding to an alert to complete an entry) and event-contingent assessments (e.g., responding should they experience a self-injurious thought or behaviour). As well as ascertaining previously unobtained phenomenological information about the forms and functions of self-injurious thoughts and behaviours, the study collected information regarding what young people did instead of acting upon their ideation; how they coped with their self-injurious thoughts (i.e., "Identify the other activities you did instead of hurting yourself": "Watched TV/movie"; "Used computer"; "Talked to someone"; "Went to sleep"; "Changed thoughts"; "Listen to music"; "Went out"; "Work/homework"; "Other"[20]) .

Participants disclosed an average of 5.0 non-suicidal self-injurious thoughts per week. This ideation was most commonly brief (1–30 minutes) and of moderate intensity. Participants engaged in an act of non-suicidal self-injury on average between one and two times in a week (1.6 NSSI episodes/week). Suicidal thoughts occurred less frequently (1.1/week) than non-suicidal thoughts and were of longer duration. No one made a suicide attempt during the course of the study period (Nock et al., 2009).

Considering what young people with self-injurious thoughts did as an alternative to engaging in self-injurious behaviour(s), instead of engaging in an

[20] Participants were instructed to "Click none, one, or more than one of the choices offered". If the participant selected "Other" an additional screen appeared which permitted them to describe their alternative behaviour in their own words (see Nock et al., 2009, supplemental materials: https://doi.org/10.1037/a0016948).

act of non-suicidal self-injury (when they had a thought to engage in an act of non-suicidal self-injury), adolescents most commonly reported trying to change their thoughts (22.3% of the time), talking to someone (20.7%), or engaging in a *potentially* distracting behaviour (going out, 18.2%; doing homework or work, 15.3%; using the computer, 14.0%; listening to music, 11.2%; going to sleep, 9.9%; watching TV or a movie, 8.3%). Talking to someone was endorsed on more than a third of occasions where participants sought alternative behaviours when experiencing suicidal thoughts (34.6%). This was the most commonly reported alternative behaviour. Changing thoughts (26.9%) and doing work or homework (23.1%) were the next most frequently endorsed alternatives, followed by going out or going to sleep (both 15.4%), using the computer or listening to music (both 11.5%). Few people endorsed watching TV/movies (3.8%) as an alternative to acting on suicidal thoughts. No endorsement of an "Other" alternative behaviour was reported (Nock et al., 2009). This is particularly of note considering the findings reported by Czyz and colleagues (2019) demonstrating engagement in NSSI as an alternative to acting on suicidal ideation.

5.1.3 Current study

The current study seeks to explore whether participants' coping moderates the relationship between stress and same-day self-harm experience (e.g., thoughts; urges; difficulty in resisting; self-harm behaviour), in a community-based sample. Beyond the existing research, the work explored participants' self-defined, functional coping dynamics. That is the say that: (i) rather than focusing on what the participant did, the focus was on what function that

coping strategy served for them, and (ii) rather than inferring functionality as researchers, participants provided information on the perceived and/or intended purposes of their cognitive and/or behavioural, coping response(s). As Nock and colleagues (2009) note, a limitation of their work – which arguably extends to other research presented – is that it is difficult to infer whether an alternative behaviour is positive or negative (e.g., "Went out" – what did the participant do when they were out? Why did the participant go out?). Indeed, it is also difficult to infer functionality (e.g., "Talking to a family member", as reported in Czyz et al. [2019], could functionally be a form of avoidance – if the person believes that this will allow them to ignore the existence of the problem, or approach coping – if the person believes that this will allow them to deal directly with the problem or stressor encountered, or to aid emotion regulation – if the person believes that it will allow them to deal with the emotional consequences of the difficulty faced, or support reappraisal – if the person believes that talking to someone will allow them to readdress and reinterpret the meaning of the problem, difficulty of challenge). Understanding what the coping response means to the participant may be important in understanding the dynamic interplay of factors which may increase the likelihood of experiencing self-harmful thoughts and behaviours.

The current study focuses broadly on coping with daily stresses – and the associations this may have with self-harm experiences – rather than coping *with* self-harm thoughts, per se. While Turner et al (2019) used items of the ABUSI (Washburn et al., 2010) to categorise persistent thought and intense urge ideation groups, the current study explores associations with each item of

the ABUSI separately. That is to say that this study considers the prediction of self-harm thought intensity, urge intensity, time spent thinking about self-harm, difficulty resisting, and overall intensity of self-harm experience, as well as capturing self-harm behaviour.

The work utilised a daily diary – as opposed to EMA – methodology to increase the likelihood that participants would have a meaningful experience to report on (e.g., to have faced a stressor or difficult experience that they have had to cope with). The phenomena of interest were likely to be able to be adequately captured at a daily level and it was felt that a more intensive assessment schedule would likely lead to participants disengaging with the research as they did not have an experience to report. Daily assessment also permitted the use of a validated measure of coping – the Functional Dimensions of Coping scale (FDC: Ferguson & Cox, 1997). As the measures asks participants to report the stressor faced, their coping responses and complete a 16-item questionnaire this may have been too burdensome for inclusion with the battery of assessment items if used within an EMA protocol. The study assessment period took place over a 7-to-10-day timeframe, repeated at 12 months. This was to capture potential variability in stressors faced.

The work presented within this chapter addresses the following three research questions:

1) Do functional coping dynamics, stress, and self-harm experience (e.g., thoughts; urges) exhibit day-to-day variability?
2) Do functional coping dynamics moderate the relationship between stress and self-harm behaviour?

3) Do functional coping dynamics moderate the relationship between stress and broader self-harm experience (i.e., thoughts; urges; difficulty to resist; time spent thinking about self-harm and overall intensity of self-harm experience)?

5.2 Methods

5.2.1 Participants

Seventy-four adult participants were recruited to the study. Participants varied in age between 18 and 35 years (Mean: 20.08, ±2.87). The majority of the sample were female (86.49%). Ethnicity demographics were not captured; however, all participants were currently resident in the UK, studying and/or working at the University of Nottingham. Study inclusion criteria indicated that all participants were to: (i) be aged over 18 years, and (ii) have access to a smart phone or computing facilities with a reliable internet connection. Seventy-one participants were eligible and invited to take part in data collection at time two. Of these, 62 participants came into the laboratory to complete time two baseline assessments and 60 participants completed both the initial laboratory-based assessment and made some daily diary entries. Fifty-seven people (N = 57) were adherent across both time points and are included in the analysis (ages 18-25 years, Mean = 19.86 years, ±2.26; gender: 85.96% female). The achieved sample size is equivalent to those reported in other 2-week, daily diary studies (e.g., Turner et al., 2019; N = 60).

5.2.2 Design and procedure

Participants completed a seven-to-ten day, daily diary protocol at two time periods – to capture variability in stress – 12 months apart. At the beginning and end of each daily diary period, participants attended a laboratory-based session. At the initial session, the protocol was outlined, and participants had an opportunity to ask any questions. Informed consent and contact details were obtained. This was: (i) to enable contact should concerns regarding risk arise during the study period, and (ii) (at time one) to permit contact for re-assessment in 12 months. During this initial laboratory visit, baseline measures of lifetime self-harm were captured. After completion of the daily diary period, at each time point, participants returned to the laboratory for debriefing. The precise length of the daily diary period was dependent upon participants' availability to return to the laboratory (after a minimum of seven days).

Daily diary entries assessed momentary affect, the biggest stressor faced by the participant that day, and the cognitive and behaviour responses employed in an effort to cope with that stressor. Participants rated their level of stress that day, as well as self-harm thoughts, urges, difficulty resisting self-harm, time spent thinking about self-harm, overall intensity of self-harm experience and any self-harm behaviours. Intention to live, intention to die and the certainty associated with these intentions was captured where a participant had self-harmed.

Distress tolerance, anxious and depressive symptomatology, and perceived availability and proximity of social support were also captured at the

exit laboratory session at each time point. Distress tolerance, anxious and depressive symptomatology, responses to the most significant stressor faced in the last 3 months, and experiential avoidance were also assessed at the initial laboratory assessment at both time points. In the daily diary entries participants reported whether they considered their coping responses that day to be usual for them and useful to them and rated their momentary affect. These data are not presented within the current study – as they are not central to answering the research questions posed here – and will be analysed elsewhere.

Participants were e-mailed a link to the daily diary entry at the end of office hours (5:30-6:00 pm), including on weekend days. A SMS reminder was sent by the researcher to the participant(s) to inform them that the link had been sent and to remind them about completion at the end of the day. Participants were instructed to complete their entry as close to the end of their day as possible. This was to permit maximal reflection on the day as a whole. Electronic timestamping of diary completion allowed for assessment of adherence. An entry was considered 'valid' if submitted prior to the start of the subsequent day (9:00 am). In order to confirm adherence, and therefore be eligible to take part in time two, participants had to submit at least five valid entries, of which three or more had to be on consecutive days. Data were checked each morning for the purposes of ongoing risk assessment and adherence monitoring. Participants were contacted if they had not made an entry.

The work received ethical approval from the University of Nottingham, School of Psychology Ethics Committee (Ref. 288, 367). All participants

provided written informed consent. All participants were recruited via advertisements posted across the University of Nottingham's (UK) University Park and Jubilee campuses, departmental e-mails, and via the School of Psychology's Research Participation Scheme. Recruitment was not topic blind; the study was advertised as "part of an on-going project investigating coping function and self-harmful behaviours". Initial advertising materials highlighted that we were "recruiting participants who have never self-harmed, as well as those who have". Subsequently, ethical approval was granted to target recruitment to those with a (lifetime) history of self-harm (Chair Approval of Minor Amendments). This was to allow us to maximise upon the potential to capture self-harm experiences (e.g., thoughts; behaviours) during the study periods.

Participants received either £10 or (where applicable) Research Participant Scheme (RPS) credit for completion of each time point. RPS credit represents partial course credit.

5.2.3 Measures

5.2.3.1 Baseline assessments

The following assessments were conducted at time one and time two, unless otherwise stated.

5.2.3.1.1 Demographic factors

Age and gender demographics were collected at time one.

5.2.3.1.2 Self-harm

Lifetime history of self-harm was captured at the beginning of both time points. At the start of time two, last year self-harm was also assessed (self-harm that had occurred between time points one and two). Self-harm history was self-reported using section one of the Inventory of Statements about Self-Injury (ISAS: Klonsky & Glenn, 2009; Klonsky & Olino, 2008). The measure captures the frequency of engagement in 12 behaviours (i.e., banging/hitting self; biting; burning; carving; cutting; wound picking; needle-sticking; pinching; hair pulling; rubbing skin against rough surfaces; severe scratching; swallowing dangerous substances). The measure includes an "other" category, allowing free report of self-harm behaviours. The requirement for the behaviour to have been conducted in the absence of suicidal intent was omitted. The measure captures a number of contextual factors, including the recency of self-harm, age of onset, experience of pain (or lack thereof) during self-harm, desire to stop self-harming (or lack thereof), the typical amount of time elapsed between the onset of thought to self-harm and self-harming, whether the individual is typically alone when self-harming, and the main form of self-harm (should they have one).

5.2.3.2 Daily diary assessment

5.2.3.2.1 Coping

The Functional Dimensions of Coping scale (FDC: Ferguson & Cox, 1997) is a three-stage measure, capturing how people attempt to deal – both cognitively and behaviourally – with situations they find stressful or distressing. The

measure contains both quantitative and qualitative components and aims to assess what an individual believes their engagement in specific cognitions or behaviours will achieve. The first two parts of the measure allow the participant to describe: (i) a stressful event they have experienced (free response), and (ii) the coping responses they used to help them deal with this (free response). In the original format, the measure captures the most stressful event in the previous 3 months. For the purpose of the daily diary study, the instructions were altered to capture the greatest stressor experienced that day. A 16-item series of Likert measures permit indication of the perceived coping function(s) of the participants' coping responses.

The measure pertains to four dimensions of coping: (i) approach (dealing directly with the problem, e.g., "To what extent did this/these activities allow you to help you to think about the problem in a new and useful way?"), (ii) avoidance (allowing the individual to ignore the existence of the situation, e.g., "To what extent did this/these activities help you to divert your attention away from the problem?"), (iii) emotional regulation (dealing with the emotional consequences of a problem, e.g., "To what extent did this/these activities enable you to deal with any emotional upset caused by the event?"), and (iv) reappraisal (readdressing and reinterpreting the meaning of a situation, e.g., "To what extent did this/these activities allow you to step back and look at the problem, in a different way, such that it seemed better?").

The FDC measure deliberately does not restrict focus exclusively to a single coping response. The multi-dimensional nature of the scale allows for easy accommodation of the simultaneous, multiple functions typical of self-

harm (Suyemoto, 1998). The measure exhibits good internal reliability and construct validity. Item scores are summed; higher scores indicate higher endorsement of coping function (maximum possible scores per subscale are: approach, 24; avoidance, 24; emotion regulation, 18; reappraisal, 30). Cronbach's alphas for participant mean centered scale items suggest good internal consistency (approach: α = 0.85 [95% CI: 0.83-0.87]; avoidance: α = 0.86 [95% CI: 0.85-0.88]; emotion regulation: α = 0.81 [95% CI: 0.78-0.83]; reappraisal: α = 0.85 [0.83 – 0.87]).

5.2.3.2.2 Level of stress

After completion of section one of the FDC (Ferguson & Cox, 1997), participants were asked to rate the level of stress encountered that day. This was assessed with a single item measure "How stressful did you find the event?". Participants rated their experience of daily stress, in response to the stressor faced, on a seven-point Likert scale ("Not at all stressful" – "Very stressful"). Higher score indicated high endorsement of concept (i.e., a higher stress day).

5.2.3.2.3 Self-harm

5.2.3.2.3.1 Self-harm behaviour

The inventory of behaviours taken from the ISAS (Klonsky & Glenn, 2009; Klonsky & Olino, 2008) was used to capture daily self-harm. The requirement for the behaviour to have been conducted in the absence of suicidal intent was omitted. This allowed exploration of intent in the conceptualisation of self-harmful/ suicidal behaviours.

5.2.3.2.3.2 Self-harm thoughts and urges

The Alexian Brothers Urge to Self-Injure scale (ABUSI) (Washburn et al., 2010) is a five-item scale devised to capture self-harm thoughts, urges and associated experiences (e.g., difficulty to resist acting upon these experiences; time spent thinking about self-harming). The original scale has demonstrated adequate internal consistency, test-retest reliability, sensitivity to change, and convergent, predictive, and incremental validity. For the purposes of the current study, the timeframes associated with the responses have been altered in line with the daily diary format (see Table 12; original measure available in Appendix B). In line with the original measure, all answers were given on a seven-point Likert scale.

Table 12. The modified Alexian Brothers Urge to Self-Injure scale (ABUSI) used for capturing daily self-harm thoughts and urges.

Variable	Number of items	Items	Responses
Thoughts	1	"How often have you thought about injuring yourself or about how you want to injure yourself?"	1. "Never" 2. "Rarely" 3. "Occasionally" 4. "Sometimes" 5. "Often" 6. "Most of the time" 7. "Nearly all the time"
Urges	1	"At the most severe point, how strong was your urge to self-injure?"	1. "None at all" 2. "Slightly, that is, a very mild urge" 3. "Mild urge" 4. "Moderate urge" 5. "Strong urge, but easily controlled" 6. "Strong urge, but difficult to control" 7. "Strong urge and who have self-injured if able to"
Time spent thinking about self-harming	1	"How much time have you spent thinking about injuring yourself or about how you want to injure yourself?"	1. "None" 2. "Less than 20 mins" 3. "21-45 mins" 4. "45-90 mins" 5. "90mins to 3 hrs" 6. "3-6 hrs" 7. "More than 6 hours"

Difficulty to resist	1	"How difficult was it to resist injuring yourself?"	1. "Not difficult at all" 2. "Very mildly difficult" 3. "Mildly difficult" 4. "Moderately difficult" 5. "Very difficult" 6. "Extremely difficult" 7. "Was not able to resist"
Overall urge or desire to self-harm	1	"Keeping in mind your responses to the previous questions, please rate your overall average urge or desire to injure yourself."	1. "Never thought about it and never had the urge to self-injure" 2. "Rarely thought about it and rarely had the urge to self-injure" 3. "Occasionally thought about it and occasionally had the urge to self-injure" 4. "Sometimes thought about it and sometimes had the urge to self-injure" 5. "Often thought about it and often had the urge to self-injure" 6. "Thought about self-injury most of the time and had the urge to do it most of the time" 7. "Thought about self-injury nearly all the time and had the urge to do it nearly all the time"

5.2.3.2.3.3 Intention to live and intention to die

On days where participants reported that they had self-harmed, they were asked to indicate their intention to live and intention to die that day. Participants were asked on both seven-point Likert scales (“yes”–“no”) and as dichotomous questions (“yes”/“no”) (see Table 13). Participants were also asked to rate their certainty in the judgements made. The order of presentation of the questions was counterbalanced.

Table 13. Intention to live and intention to die variables and the certainty related to these judgements.

Variable	Number of Items	Question	Response option	Follow-up question	Response option
Intention to die	2	"When you carried out the self-harmful act did you intend to die?"	"Yes"/ "No"	"Please rate your level of certainty in relation to this judgement."	(Likert scale; 1–7) "Unsure" – "As certain as one can be"
		"When you carried out the self-harmful act did you intend to die?"	(Likert scale; 1-7) "Yes" – "No"	"Please rate your level of certainty in relation to this judgement."	(Likert scale; 1–7) "Unsure" – "As certain as one can be"
Intention to live	2	"When you carried out the self-harmful act did you intend to live?"	"Yes"/ "No"	"Please rate your level of certainty in relation to this judgement."	(Likert scale; 1–7) "Unsure" – "As certain as one can be"
		When you carried out the self-harmful act did you intend to live?	(Likert scale; 1-7) "Yes" – "No"	"Please rate your level of certainty in relation to this judgement."	(Likert scale; 1–7) "Unsure" – "As certain as one can be"

5.2.4 Data analysis

Data analysis was conducted in Excel, SPSS (version 24: IBM Corp, 2016) and R, within the R studio development environment (RStudio Team, 2019). R packages utilised were: lme4 (Bates et al., 2015), sjPlot (Lüdecke et al., 2020), foreign (R Core Team et al., 2020), psych (Revelle, 2019), ICC (Wolak, 2015), and ggplot2 (Wickham, 2016). Quantpsy[21] was used to probe interactions.

To examine day-to-day variability in functional coping dynamics, stress level, and self-harm thoughts and behaviours (e.g., thought intensity; urge intensity; time thinking about self-harm), intra-class calculations were calculated.

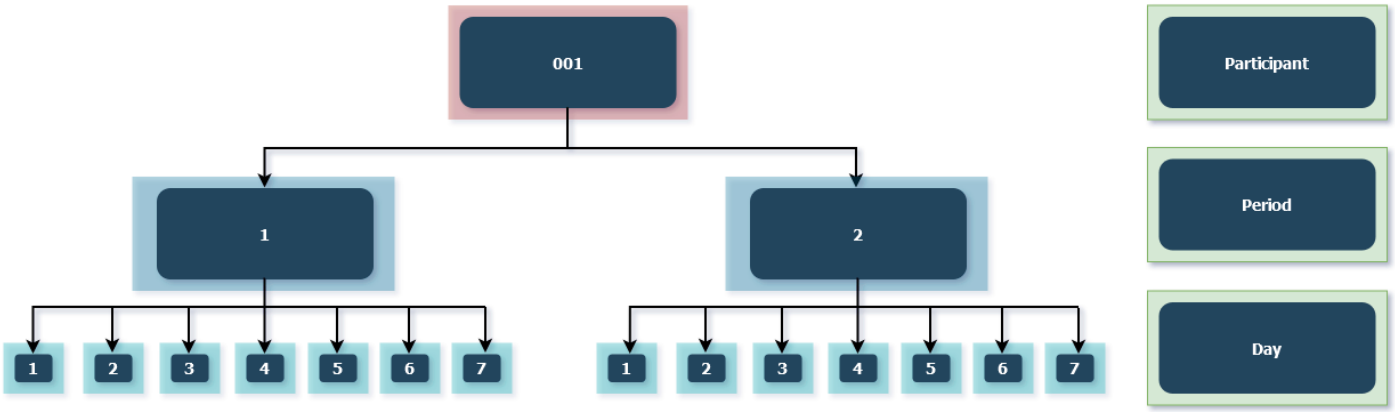


Figure 6. Nested data structure of the repeated, daily diary study.

[21] http://www.quantpsy.org/interact/hlm2.htm

To explore whether functional coping dynamics moderate stress to predict experiences of self-harm thoughts and behaviours, a series of multi-level models were calculated. Given that data were nested in structure (i.e., days were nested within periods within individuals, see Figure 6) – organised at more than one level – assumptions of independence are violated. Multi-level modelling was therefore utilised given its ability to provide accurate parameter estimates for data with a nested structure by deconstructing variance into between and within subject levels. The data has three levels (e.g., day; period; participant). However, <0.01 – 0.12 between period variance ($\tau_{00period}$) was explained by the third level, therefore this level was omitted, and two-level models were presented.

All predictor variables entered into multi-level models were participant mean centred (X_{ij} - $\bar{X}_j$)[22]. This permits assessment of within-person effects – that is to say, the effect of change relative to the person's own average (i.e., when a participant experiences an increase in a given predictor – such as stress – relative to their own mean, does the probability of experiencing a self-harm thought or behaviour increase or decrease?) (Czyz et al., 2019). This centering option is appropriate when participant means are expected to differ meaningfully or if variations from a participant's average is of theoretical relevance (Kleiman, 2017; Russell, 2020). Given the focus on understanding

[22] Response *i* from participant *j* – mean for participant *j*. This is sometimes also referred to as group-mean centered.

individuals' responses to difficult days, it is important to be able to ascertain whether a coping response or stress level was high or low *for them*, rather than for the average group experience. Indeed, this approach furthers the doctoral research presented thus far, which focuses on between-groups differences.

Random intercept models were utilised throughout. While random slopes models were calculated for all relationships, this did little to improve model AICs. Issues of singular fit suggested that these models were overfitted, with a defined random effects structure too complex to be supported by the data. In line with standard advice, the most complex aspect of the random effects structure was omitted (random slopes). All multilevel models used all 57 participants adherent across both time points (e.g., analysis predicting self-harm behaviour was not restricted to just those who reported self-harm thoughts). This is because on a minority of days on which a participant self-harmed, they did not report thinking about self-harm (n = 6, 9.68%; missing data, one entry). All models considered same-day effects.

Overall adherence cannot be calculated due to the varying duration of daily diary periods (i.e., dependent upon when the participant was able to return to the laboratory, after the initial 7-day period) which were not noted. However, adherence can be assessed in terms of entries made and level of missingness within the dataset. The level of missing data was low. In regard to predictor variables, between 21 and 29 days of data were missing for items of the FDC and information regarding the participants' level of stress was missing in 13 daily diary entries. In terms of outcome variables, again the amount of

missing data was low: self-harm behaviour had no missing data; self-harm thought ("yes"/"no") and self-harm thought intensity had six entries where information was omitted; self-harm urge intensity had missing data on six entries; difficulty resisting self-harm thoughts and urges data were missing in eight entries; time spent thinking about self-harm data were missing in six entries, and overall intensity of self-harm experience data were omitted across five daily diary entries. Missing data were not imputed and were not included in the calculations when centering the data.

5.3 Results

5.3.1 Preliminary analyses

5.3.1.1 Number of daily diary entries

At time one, a total of 425 days of data were recorded. The mean number of entries per participant was 5.74 days (*SD* = 0.97). At time two, a total of 370 days of data were recorded. The mean number of entries per participant was 6.17 days (*SD* = 0.96). Fifty-seven people were adherent across both time points. Throughout the whole study, a total of 795 days of daily diary data were recorded (across the 74 people). A total of 688 days were recorded by just those people who were compliant at both time points (*N* = 57). These are the data that will be included in the main analysis. This is comparable to the total number of observations reported in other daily diary studies (e.g., Czyz et al., 2019; 650 observations). Time points one and two were spaced 12 months apart. The mean number of days between time points 352.14 days (*SD* = 8.79).

5.3.1.2 Do those who did and did not confirm adherence to the protocol different in terms of gender, age, and self-harm status?

Of the 74 participants who were initially recruited to the study, 64 were female (86.49%). Participants were young adults (Mean age = 20.08 years, ± 2.87). Of the 57 participants who adhered to the protocol across both time points, 49 were female (85.96%), with a mean age of 19.86 years (± 2.26). There was no statistically significant difference in those who were and were not adherent across both time points in terms of age (Mann-Whitney test: $U = 429.50$, $Z = -.727$, $p = .467$), gender (Fisher's Exact Test = 1.00), or self-harm status at time one (Fisher's Exact Test = .246).

5.3.1.3 Preliminary analysis of the final sample

5.3.1.3.1 Lifetime self-harm at time one

Of the 57 individuals in the final sample, 42 (73.68%) reported lifetime self-harm at time one. Six (14.29%) participants reported more than 500 self-harm episodes during their lifetime (501-1,000 episodes, 2.38%; 1,001-5,000, 11.90%). However, unlike in previous samples (see Chapter 2), no participant reported engaging in self-harm more than 5,000 times (0%). Just over a quarter of those who had self-harmed had done so between 101-500 times ($n = 12$; 28.57%). The majority ($n = 24$; 57.14%) of participants with a lifetime history of self-harm reported engaging 100 times or less (1-5 episodes, $n = 2$, 4.76%; 6-50 episodes, $n = 14$, 33.33%; 51-100 episodes, $n = 8$, 19.04%). Interfering with wound healing was the most commonly reported method of self-harm,

followed by banging or hitting oneself and then self-cutting and pinching (see Table 14).

The Inventory of Statements about Self-Injury (ISAS) captures information regarding when the most recent episode of self-harm occurred (section one, question three). Date stamping for survey completion allowed for a recency variable to be computed, representing the number of days since the last self-harm episode. Where exact date information was not available from the ISAS, a metric was generated to ensure that standardised rules were applied across participants. For example, in instances where just a month was indicated (e.g., 'August'), recency was computed from the 15th of that month (i.e., 15th August). The rules were applied consistently with those which were applied in Chapter 2. However, it should be noted that in the present chapter, the values given where – on the whole – less specific (e.g., '16'; '2014'). Therefore, the accuracy of recency judgements is likely more varied.

Thirty-seven participants who had a lifetime history of self-harm indicated when they had last self-harmed. Recency ranged from 2 to 3,537 days (9.69 years) ago (Mean = 565.70, ± 686.26). Five participants had self-harmed in the month before the study period (time one) began, with one participant having self-harmed in the week preceding. Twenty people (cumulatively) had self-harmed in the year prior to entering the study.

Table 14. Methods of self-harm reported by participants with a lifetime history of self-harm (*n* = 42).

Self-harm method (lifetime)	*n*	(%)
Interfering with wound healing	32	(76.2)
Banging or hitting self	29	(69.0)
Cutting	27	(64.3)
Pinching skin against a rough surface	27	(64.3)
Severe scratching	25	(59.5)
Biting	21	(50.0)
Pulling hair	17	(40.5)
Burning	11	(26.2)
Rubbing skin against rough surface	10	(23.8)
Sticking self with needles	7	(16.7)
Carving	6	(14.3)
Swallowing dangerous substances	5	(11.9)
Other	2	(4.8)

Note. Participants indicated self-harm behaviours which they had ever engaged in. Therefore, many participants are indicated in more than one group.

5.3.1.3.2 Lifetime self-harm and past year self-harm at time two

At time two, when asked about their lifetime history of self-harm, 38 participants indicated that they had ever self-harmed (66.66%). Seven participants indicated at time one that they had a lifetime history of self-harm,

but at time two did not report a lifetime history. Three participants who had reported no lifetime history of self-harm at time one reported a lifetime history of self-harm at time two.

Twenty-eight participants reported self-harming between time one and time two (49.12%). For one person this was first time self-harm. Two participants reported self-harming between time one and time two but did not report lifetime self-harm at time two (see Table 28, Appendix D: Supplementary materials).

Participants' lifetime estimates of the number of self-harm episodes at time two were compared to the sum of their estimates of lifetime history of self-harm at time one and last year self-harm. Results of a Wilcoxon signed-rank test indicated a significant difference in estimates of self-harm. The sum of last year self-harm plus lifetime history at time one was significantly higher than lifetime history estimates at time two (Z = -5.529, p <.001).

5.3.1.3.3 Self-harm thoughts and behaviours reported during the study period

5.3.1.3.3.1 Self-harm behaviour

Of the 688 days included in the main analysis, the number of self-harm events in one day ranged from 0–57 (Mean = 0.88; ± 4.66) (see Figure 18, Appendix D: Supplementary materials; see Figure 19, Appendix D: Supplementary materials). Of those who had self-harmed that day, the range of self-harm incidents per day was 1–57 (Mean = 9.76, ± 12.51). Self-harm was recorded in

62 diary entries (9.0%), across 18 participants (31.58%) (see Figure 18, Appendix D: Supplementary materials; Table 29, Appendix D: Supplementary materials).

5.3.1.3.3.2 Self-harm thoughts

Self-harm thoughts were reported on 175 days[23] (25.4%; missing data: *n* = 6, 0.9%), across 37 participants (64.91%; see Figure 20, Appendix D: Supplementary materials). For those who experienced self-harm thoughts, they ranged in intensity from 2–7 ("Rarely" – "Nearly all the time") (Mean = 3.17, ± 1.46). Six people reported self-harming on a day when they reported no thoughts of self-harming (thoughts data were missing for one daily diary entry when self-harm was reported).

5.3.1.3.3.3 Self-harm urges

Self-harm urges were reported on 168 days[24] (24.4%; missing data: *n* = 6, 0.9%), across 38 participants (66.66%; see Figure 21, Appendix D: Supplementary materials). For those who experienced self-harm urges, they

[23] This was calculated from the thoughts item of the modified ABUSI "How often have you thought about injuring yourself or about how you want to injure yourself?". Scores were dichotomised; any score greater than 1 ("Never") was coded as "thoughts, yes", while a score of 1 was coded as "thoughts, no".

[24] This was calculated from the urges item of the modified ABUSI "At the most severe point, how strong was your urge to self-injure?". Scores were dichotomised; any score greater than 1 ("None at all") was coded as "urge, yes", while a score of 1 was coded as "urge, no".

ranged in intensity from 2-7 (“Slightly, that is, a very mild urge” - “Strong urge and would have self-injured if able to”) (Mean = 3.55, ± 1.74).

5.3.1.3.3.4 Time spent thinking about self-harm

Time spent thinking about self-harm was reported on 170 days[25] (24.7%; missing data: *n* = 6, 0.9%), across 36 participants (63.16%; see Figure 22, Appendix D: Supplementary materials). For those who spent time thinking about self-harming, this ranged from 2-7 (“Less than 20 mins” - “More than 6 hours”) (Mean = 3.08, ± 1.43).

5.3.1.3.3.5 Difficulty resisting self-harm

Difficulty in resisting self-harm was reported on 112 days[26] (16.3%; missing data: *n* = 8, 1.2%), across 28 participants (49.12%; see Figure 23, Appendix D: Supplementary materials). For those who experienced difficulties in resisting self-harm, the magnitude of this difficulty ranged in intensity from 2-7 (“Very mildly difficult” - “Was not able to resist”) (Mean = 3.56, ± 1.79).

[25] This was calculated from the time spent thinking item of the modified ABUSI “How much time have you spent thinking about injuring yourself or about how you want to injure yourself?”. Scores were dichotomised; any score greater than 1 (“None”) was coded as “time spent, yes”, while a score of 1 was coded as “time spent, no”.

[26] This was calculated from the difficulty in resisting item of the modified ABUSI “How difficult was it to resist injuring yourself?”. Scores were dichotomised; any score greater than 1 (“Not difficult at all”), was coded as “difficulty, yes”, while a score of 1 was coded as “difficulty, no”.

5.3.1.3.3.6 Overall daily average urge or desire to injure yourself

Participants were asked to rate their overall, average daily urge or desire to self-harm. None-zero self-harm experience were reported on 186 days[27] (27.0%; missing data: *n* = 5, 0.7%), across 37 participants (64.91%; see Figure 24, Appendix D: Supplementary materials). For those who experienced an urge or desire to injure themselves, this ranged in intensity from 2-7 ("Occasionally thought about it and occasionally had the urge to self-injure" - "Thought about self-injury nearly all the time and had the urge to do it nearly all the time") (Mean = 3.18, ± 1.49).

5.3.1.3.3.7 Intention to live and intention to die

Of the 62 days when people reported self-harm during the dairy study, on the dichotomous measure, nobody reported intending to die. However, 12 people expressed a lack of certainty about their judgement that they did not intend to die. The range of certainty was from 2–7 (on a seven-point scale, with higher score indicating greater certainty) (whole sample mean = 6.613; ± 1.03). A score of two indicates being less than 50:50 in your judgement.

On the Likert measure of intention to die, six people reported some (i.e., none-zero) intention to die (whole sample mean = 6.67**;** ± .82). Of these

[27] This was calculated from the final item of the modified ABUSI "Keeping in mind your responses to the previous questions, please rate your overall average urge or desire to injure yourself". Scores were dichotomised; any score greater than 1 ("Never thought about it and never had the urge to self-injure") was coded as "thoughts, yes", while a score of 1 was coded as "thoughts, no".

people, the range of intention to die was 3–6 (on a seven-point scale, with higher score indicating lower intention to die), indicating low intention to die to equal intention to die and not to die. Eleven people expressed some uncertainty about the judgements they made on the Likert assessments of intention to die. The range of certainty was from 3–6 (on a seven-point scale, with higher score indicating greater certainty). This range indicates being fairly certain to equally sure and unsure (whole sample mean = 6.68, ± .84).

Of the 62 days when people reported self-harm during the dairy study, when asked to report intentions to live on dichotomous measure, participants indicated wanting to live on 61 days. One person reported not intending to live on one day (whole sample mean = .98, ± .13). On 15 of the diary study days, people indicated that they were not certain in their judgement that they intended to live. The range of certainty was from 3–6 (on a seven-point scale, with higher score indicating greater certainty) (whole sample mean = 6.58, ± .90). This range indicates being fairly certain to equally sure and unsure.

On the Likert measure of intention to live, six people reported some (i.e., none-zero) intention not to live (whole sample mean = 1.15; ± .48). There was missing data from one diary entry. Fifteen people indicated that they were not completely certain in their judgement. The range of certainty was from 3–6 (on a seven-point scale, with higher score indicating greater certainty) This range indicates being fairly certain to equally sure and unsure (whole sample mean = 6.55; ± 1.02).

Overall, if intention to die and intention to live are asked exclusively in a dichotomous manner, then a proportion of people who express a degree of ambivalence in Likert measurements (7/62 = 11.29%) or who express uncertainty in their judgement (15/62 = 24.19%) are missed. However, there is no statistically significant difference in participants' certainty when making ratings using dichotomous or Likert measures (intention to die: Wilcoxon signed ranks test, Z = -1.633, p = .102; intention to live: Wilcoxon signed ranks test, Z = -1.342, p =.180).

5.3.2 Do functional coping dynamics, stress, and self-harm experience (e.g., thoughts; urges) exhibit day-to-day variability?

To address research question one, intra-class correlations were computed. Across all independent, moderator and continuous dependant variables, the full scale was used during the daily diary reporting period (see range scores). The intra-class correlations presented in Table 15 indicate that all variables exhibit considerable variation across the study. Eighty-four percent of variability in stress level experienced was due to within-person (1-ICC) variation. In terms of functional coping dynamics, between 70%–80% of day-to-day fluctuation was accounted for by within-person variability (vs. between person variation) (approach, 75%; avoidance, 80%; emotion regulation, 78%; reappraisal, 70%). Further, day-to-day variability ranged from 54% to 43% across self-harm experiences (self-harm thought intensity, 48%; self-harm urge intensity, 51%;

difficulty in resisting self-harming, 54%; time spent thinking about self-harm; 43%, overall self-harm experience intensity, 43%).

Table 15. Descriptive and variability statistics for stress, functional coping dynamics and continuous self-harm experiences (prior to centering).

Variable	Grand Mean	*SD*	IQR	Range	ICC
Stress	3.99	1.61	2.00	1-7	0.16
Approach[a]	12.24	6.90	12.00	0-24	0.25
Avoidance[a]	8.56	6.94	12.00	0-24	0.20
Emotion regulation[a]	10.70	4.42	6.00	0-18	0.22
Reappraisal[a]	13.04	7.97	12.00	0-30	0.30
Self-harm thought intensity[b]	1.56	1.21	1.00	1-7	0.52
Self-harm urge intensity[b]	1.63	1.39	0.00	1-7	0.49
Difficulty resisting self-harm[b]	1.42	1.18	0.00	1-7	0.46
Time spent thinking about self-harm[b]	1.52	1.13	1.00	1-7	0.57
Overall self-harm experience intensity[b]	1.60	1.23	1.00	1-7	0.57

Note. [a] as measured by the Functional Dimensions of Coping Scale (FDC: Ferguson & Cox, 1997), [b] as measured by a modified version of The Alexian Brothers Urge to Self-Injure scale (ABUSI: Washburn et al., 2010). *SD* = Standard deviation; IQR = Interquartile Range; ICC = Intra-class Correlation. ICC are not reported for self-harm thoughts ("yes"/"no") or self-harm ("yes"/"no") due to the dichotomised nature of the item (see Turner et al., 2016).

5.3.3 Do functional coping dynamics moderate the relationship between stress and self-harm behaviour ("yes"/ "no")?

To address research question two, a series of four, 2-level logistic random intercept models were calculated to explore whether functional coping dynamics (approach; avoidance; emotion regulation; reappraisal) moderate the relationship between stress level and same-day self-harm ("yes"/ "no").

5.3.3.1 Approach coping

There was no main effect of stress or approach coping on same-day self-harm behaviour. There was a significant stress x coping interaction (see Table 16); approach coping moderated the relationship between stress and same-day self-harm such that at low levels of approach coping, the relationship between stress and same-day self-harm was positive (b = 1.73, *SE* = 0.43, *z* = 3.99, *p* < .001) and at high levels of approach coping, an inversed relationship between stress and same-day self-harm was observed (b = -1.30, *SE* = 0.50, *z* = -2.61, *p* = .009) (see Figure 7).

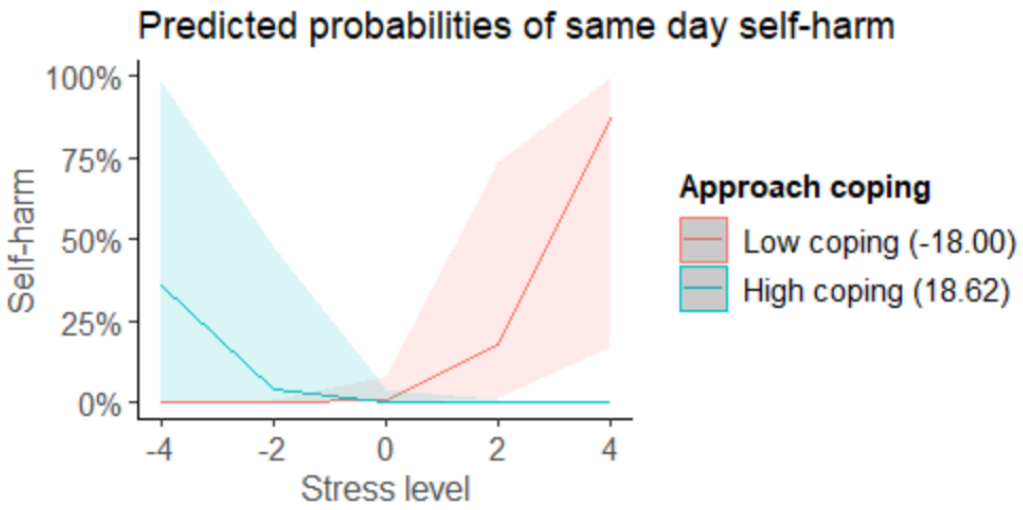


Figure 7. Predicted probabilities of same-day self-harm.

5.3.3.2 Avoidance coping

There was a main effect of stress; higher stress increased the probability of same-day self-harm. There was no main effect of avoidance coping and no stress x coping interaction (see Table 16).

5.3.3.3 Emotion regulation coping

There was a main effect of stress such that increased stress was associated with an increased likelihood of self-harm. There was no main effect of emotion regulation coping. However, there was a significant stress x coping interaction (see Table 16). Emotion regulation coping moderated the relationship between stress and same-day self-harm such that at low levels of emotion regulation coping, the relationship between stress and same-day self-harm was strengthened (b = 1.45, *SE* = 0.52, *z* = 2.80, *p* = .005) and at high levels of emotion regulation coping, the relationship between stress and same-day self-

harm was non-significant (b = -0.42, *SE* = 0.36, *z* = -1.16, *p* = .247) (see Figure 8).

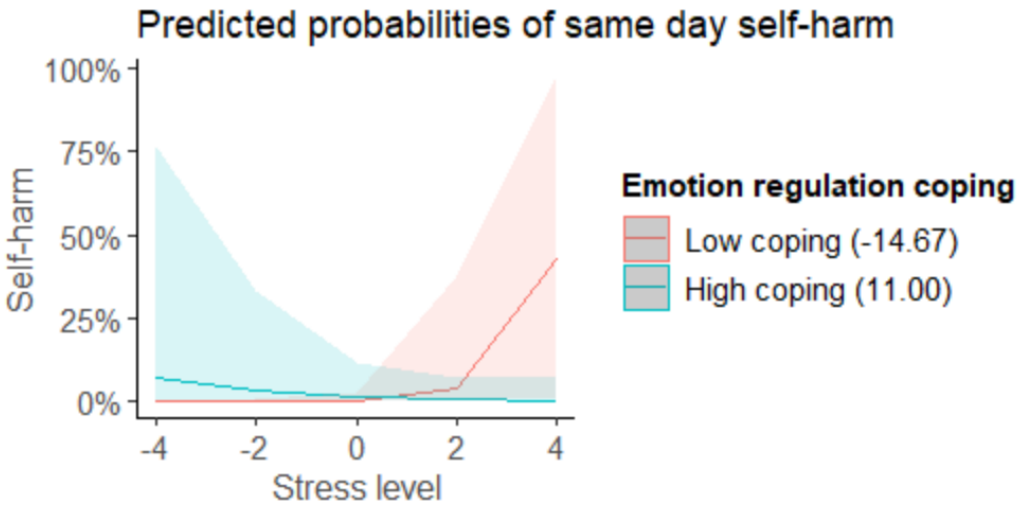


Figure 8. Predicted probabilities of same-day self-harm.

5.3.3.4 Reappraisal coping

There was no main effect of stress and no main effect of reappraisal coping on same-day self-harm behaviour. However, there was a significant stress x coping interaction (see Table 16; Figure 9); reappraisal coping moderated the relationship between stress and same-day self-harm such that at low levels of reappraisal coping, the relationship between stress and same-day self-harm was positive (b = 0.96, *SE* = 0.34, *z* = 2.79, *p* = .005) and at high levels of reappraisal coping, the relationship between stress and same-day self-harm was not significant (b = -0.55, *SE* = 0.41, *z* = -1.36, *p* = .175).

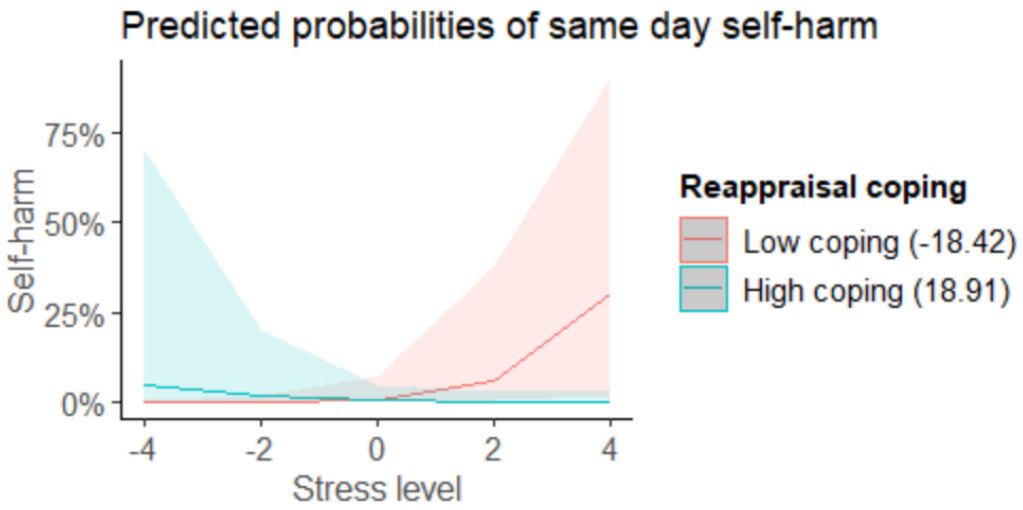


Figure 9. Predicted probabilities of same-day self-harm.

Table 16. Is there an interaction between level of stress and functional coping response in predicting same-day self-harm ("yes"/ "no")?

	Self-harm (Y/N)				Self-harm (Y/N)				Self-harm (Y/N)				Self-harm (Y/N)			
	OR	*SE*	C1	*p*	OR	*SE*	C1	*p*	OR	*SE*	C1	*p*	OR	*SE*	C1	*p*
(Intercept)	**<0.01**	**1.21**	**0.00 – 0.05**	**<0.001**	**0.01**	**1.05**	**0.00 – 0.06**	**<0.001**	**0.01**	**1.07**	**0.00 – 0.05**	**<0.001**	**0.01**	**1.01**	**0.00 – 0.05**	**<0.001**
Stress[a]	1.27	0.14	0.96 – 1.68	0.097	**1.36**	**0.13**	**1.06 – 1.74**	**0.016**	**1.46**	**0.13**	**1.12 – 1.90**	**0.005**	1.24	0.13	0.96 – 1.60	0.103
Approach[ab]	0.98	0.03	0.92 – 1.04	0.479												
Stress[a] * approach[ab]	**0.92**	**0.02**	**0.88 – 0.97**	**0.001**												
Avoidance[a]					1.04	0.03	0.98 – 1.10	0.155								
Stress[a] * avoidance[ab]					1.01	0.02	0.98 – 1.05	0.468								
Emotion regulation[ab]									1.07	0.05	0.98 - 1.18	0.140				
Stress[a] * emotion regulation[ab]									**0.93**	**0.03**	**0.87 - 0.99**	**0.026**				
Reappraisal[ab]													0.99	0.03	0.94 – 1.04	0.616
Stress * reappraisal[ab]													**0.96**	**0.02**	**0.93 – 1.00**	**0.032**
Random Effects																
σ^2	3.29				3.29				3.29				3.29			
τ_{00}	$10.81_{participant}$				$9.05_{participant}$				$9.39_{participant}$				$8.85_{participant}$			
ICC	0.77				0.73				0.74				0.73			
N	$57_{participant}$				$57_{participant}$				$57_{participant}$				$57_{participant}$			
Observations	652				650				660				644			
Marginal R^2 / Conditional R^2	0.045/ 0.777				0.020/ 0.739				0.039/ 0.751				0.022/ 0.735			
AIC	292.36				304.99				304.12				298.06			

Note. OR = Odds Ratio, *SE* = Standard Error. [a] indicates participant mean centred, [b] indicates as measured by the FDC. Bold text indicates significant in multivariate model at $p < .05$.

5.3.4 Do functional coping dynamics moderate the relationship between stress and broader self-harm experience (i.e., thoughts; urges; difficulty to resist; time thinking about self-harm and overall intensity of self-harm experience)?

To address research question three, a series of two-level random intercept models were calculated. The following outcome variables used, with results presented below: (i) thought ("yes"/"no") (see Section 5.3.4.1.1), (ii) thought intensity (see Section 5.3.4.1.2), (iii) urge intensity (see Section 5.3.4.2), (iv) difficulty to resist acting upon thoughts and urges (see Section 5.3.4.3), (v) time spent thinking about self-harm (see Section 5.3.4.4), and (vi) overall intensity of self-harm experience (see Section 5.3.4.5).

5.3.4.1 Is there an interaction between level of stress and functional coping response in predicting same-day thought of self-harm?

5.3.4.1.1 Predicting self-harm thoughts ("yes"/ "no")

A series of four, 2-level random intercept models were calculated to explore whether functional coping dynamics (approach; avoidance; emotion regulation; reappraisal) moderate the relationship between stress level and same-day self-harm thought ("yes"/ "no").[28]

[28] This was calculated from the thoughts item of the modified ABUSI "How often have you thought about injuring yourself or about how you want to injure yourself?". Scores were dichotomised; any score greater than 1 ("Never") was coded as "thoughts, yes", while a score of 1 was coded as "thoughts, no".

5.3.4.1.1.1 Approach coping

There was a significant main effect of stress, such that higher stress increased the likelihood of self-harm thought(s). There was no main effect of approach coping and no significant stress x coping interaction (see Table 17).

5.3.4.1.1.2 Avoidance coping

There was a significant main effect of stress, such that higher stress increased the likelihood of self-harm thought(s). There was no main effect of avoidance coping and no significant stress x coping interaction (see Table 17).

5.3.4.1.1.3 Emotion regulation coping

There was a significant main effect of stress, such that higher stress increased the likelihood of self-harm thought(s). There was no main effect of emotion regulation coping and no significant stress x coping interaction (see Table 17).

5.3.4.1.1.4 Reappraisal coping

There was a significant main effect of stress, such that higher stress increased the likelihood of self-harm thought(s). There was no significant stress x coping interaction (see Table 17). However, there was a main effect of reappraisal coping such that higher levels of reappraisal coping reduced the likelihood of same-day self-harm thought(s).

5.3.4.1.2 Predicting self-harm thought intensity

A series of four, 2-level random intercept models were calculated to explore whether functional coping dynamics (approach; avoidance; emotion regulation;

reappraisal) moderate the relationship between stress level and same-day self-harm thought intensity.

5.3.4.1.2.1 Approach coping

There was a significant main effect of stress such that increased stress was associated with increased self-harm thought intensity. Approach coping was negatively associated with self-harm thought intensity; higher levels of approach coping were related to lower intensity same-day self-harm thoughts. There was a significant stress x coping interaction (see Table 18). Approach coping moderated the relationship between stress and same-day self-harm thought intensity such that at low levels of approach coping, the relationship between stress and same-day self-harm thought intensity was strengthened (b = 0.37, *SE* = 0.75, *z* = 4.92, *p* <.001) and at high levels of approach coping, the relationship between stress and same-day self-harm thought intensity was reduced to non-significant (b = -0.08, *SE* = 0.11, *z* = -0.95, *p* =.342) (see Figure 10).

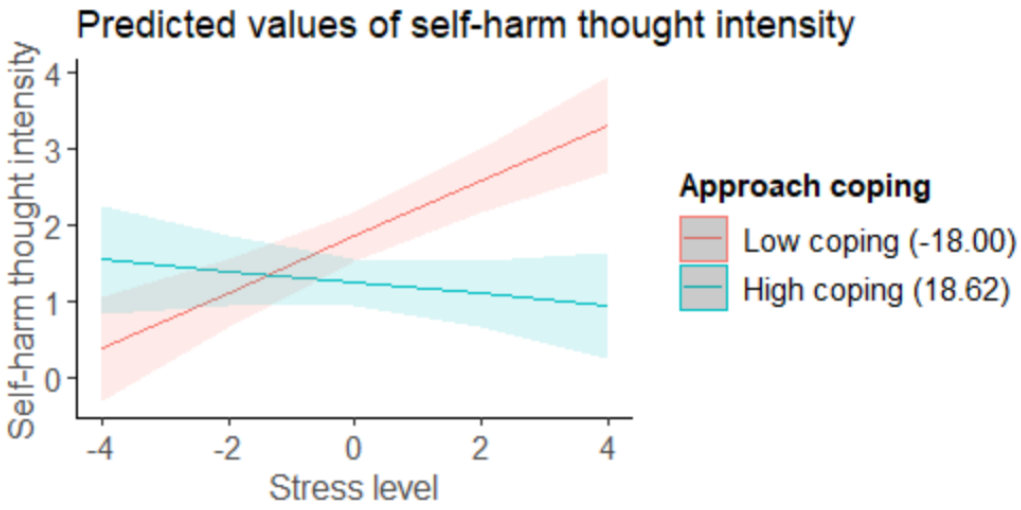


Figure 10. Predicted values of self-harm thought intensity.

5.3.4.1.2.2 Avoidance coping

There was a significant main effect of stress, such that increased stress was associated with increased same-day self-harm thought intensity. There was no main effect of avoidance coping and no stress x coping interaction (see Table 18).

5.3.4.1.2.3 Emotion regulation coping

There was a significant main effect of stress, such that increased stress was associated with increased same-day self-harm thought intensity. There was no main effect of emotion regulation coping; however, there was a significant stress x coping interaction (see Table 18). Emotion regulation moderated the relationship between stress and self-harm thought intensity such that at low levels of emotion regulation coping, the relationship between stress and same-day self-harm thought intensity was strengthened (b = 0.36, *SE* = 0.86, *z* = 4.24, *p* <.001) and at high levels of emotion regulation coping, the relationship between stress and same-day self-harm thought intensity was reduced to non-significant (b = -0.01, *SE* = 0.07, *z* = -0.18, *p* = .855) (see Figure 11).

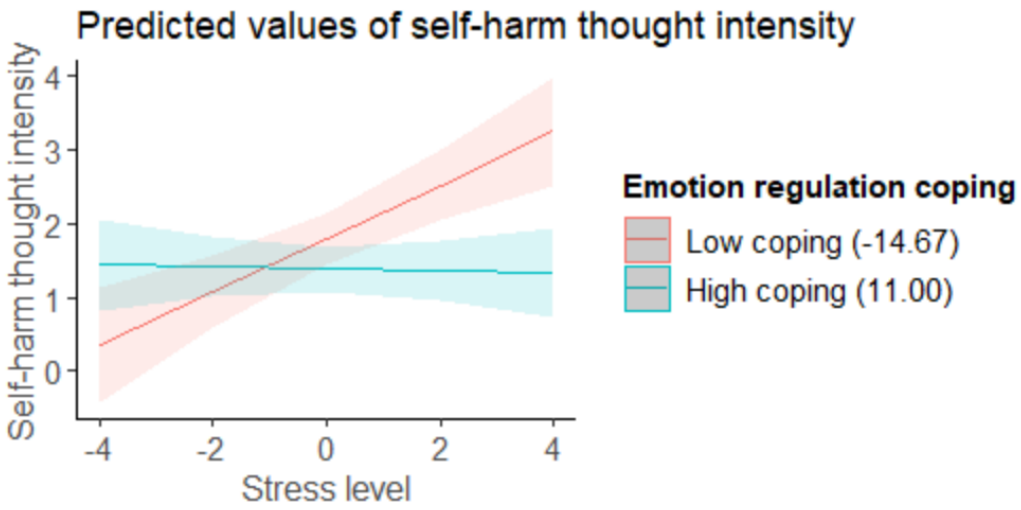


Figure 11. Predicted values of self-harm thought intensity.

5.3.4.1.2.4 Reappraisal coping

There was a significant main effect of stress, such that increased stress was associated with increased same-day self-harm thought intensity. There was also a significant main effect of reappraisal coping; higher levels of reappraisal coping were associated with lower same-day self-harm thought intensity. There was no significant stress x coping interaction (see Table 18).

Table 17. Is there an interaction between level of stress and functional coping response in predicting same-day thought of self-harm ("yes"/ "no")?

	Self-harm thoughts (Y/N)				Self-harm thoughts (Y/N)				Self-harm thoughts (Y/N)				Self-harm thoughts (Y/N)			
	OR	*SE*	C1	*p*	OR	*SE*	C1	*p*	OR	*SE*	C1	*p*	OR	*SE*	C1	*p*
(Intercept)	**0.13**	**0.39**	**0.06 – 0.27**	**<0.001**	**0.13**	**0.39**	**0.06 – 0.28**	**<0.001**	**0.12**	**0.39**	**0.06 – 0.27**	**<0.001**	**0.13**	**0.39**	**0.06 – 0.27**	**<0.001**
Stress[a]	**1.63**	**0.10**	**1.35 - 1.97**	**<0.001**	**1.68**	**0.10**	**1.39 – 2.03**	**<0.001**	**1.64**	**0.09**	**1.36 – 1.98**	**<0.001**	**1.66**	**0.09**	**1.37 – 1.99**	**<0.001**
Approach[ab]	0.97	0.02	0.93 – 1.01	0.141												
Stress[a] * approach[ab]	0.98	0.02	0.95 – 1.01	0.133												
Avoidance[a]					0.99	0.02	0.96 – 1.03	0.745								
Stress[a] * avoidance[ab]					1.03	0.02	1.00 – 1.06	0.095								
Emotion regulation[ab]									0.96	0.03	0.90 - 1.03	0.252				
Stress[a] * emotion regulation[ab]									0.97	0.02	0.92 – 1.01	0.133				
Reappraisal[ab]													**0.96**	**0.02**	**0.92 – 0.99**	**0.023**
Stress * reappraisal[ab]													1.00	0.01	0.98 – 1.03	0.758
Random Effects																
σ^2	3.29				3.29				3.29				3.29			
τ_{00}	$5.65_{participant}$				$5.50_{participant}$				$5.55_{participant}$				$5.55_{participant}$			
ICC	0.63				0.63				0.63				0.63			
N	$57_{participant}$				$57_{participant}$				$57_{participant}$				$57_{participant}$			
Observations	650				648				658				643			
Marginal R^2 / Conditional R^2	0.061/ 0.654				0.058/ 0.647				0.061/ 0.651				0.062/ 0.651			
AIC	550.23				555.28				555.00				544.24			

Note. OR = Odds Ratio, SE = Standard Error. CI = 95% Confidence Interval. [a] indicates participant mean centred, [b] indicates as measured by the FDC. Bold text indicates significant in multivariate model at $p < .05$.

Table 18. Is there an interaction between level of stress and functional coping response in predicting the intensity of same-day self-harm thoughts?

	Self-harm thought intensity				Self-harm thought intensity				Self-harm thought intensity				Self-harm thought intensity			
	β	*SE*	CI	*p*	β	*SE*	CI	*p*	β	*SE*	CI	*p*	β	*SE*	CI	*p*
(Intercept)	**1.56**	**0.12**	**1.32 – 1.80**	**<0.001**	**1.56**	**0.12**	**1.32 – 1.80**	**<0.001**	**1.56**	**0.12**	**1.32 – 1.81**	**<0.001**	**1.57**	**0.13**	**1.33 – 1.82**	**<0.001**
Stress[a]	**0.15**	**0.02**	**0.10 – 0.19**	**<0.001**	**0.15**	**0.02**	**0.11 – 0.20**	**<0.001**	**0.15**	**0.02**	**0.10 – 0.19**	**<0.001**	**0.14**	**0.02**	**0.10 – 0.18**	**<0.001**
Approach[ab]	**-0.02**	**0.01**	**-0.03 - -0.01**	**0.003**												
Stress[a] * approach[ab]	**-0.01**	**<0.01**	**-0.02 - <-0.01**	**0.003**												
Avoidance[a]					<0.01	0.01	-0.01 – 0.01	0.525								
Stress[a] * avoidance[ab]					<-0.01	<0.01	-0.01 – 0.01	0.908								
Emotion regulation[ab]									-0.02	0.01	-0.03 – <0.01	0.056				
Stress[a] * emotion regulation[ab]									**-0.01**	**0.01**	**-0.03 - <-0.01**	**0.010**				
Reappraisal[ab]													**-0.02**	**<.0.01**	**-0.03 - -0.01**	**<0.001**
Stress * reappraisal[ab]													<-0.01	<0.01	-0.01 – <0.01	0.305
Random Effects																
σ^2	0.63				0.65				0.64				0.63			
τ_{00}	$0.81_{participant}$				$0.81_{particiant}$				$0.81_{participant}$				$0.86_{participant}$			
ICC	0.56				0.55				0.56				0.58			
N	$57_{participants}$				$57_{participants}$				$57_{participants}$				$57_{participants}$			
Observations	650				648				658				643			
Marginal R^2 /	0.047/				0.030/				0.038/				0.037/			
Conditional R^2	0.583				0.567				0.574				0.593			
AIC	1734.01				1750.61				1766.23				1721.09			

Note. SE = Standard Error. CI = 95% Confidence Interval. [a] indicates participant mean centred, [b] indicates as measured by the FDC. Bold text indicates significant in multivariate model at $p < .05$.

5.3.4.2 Is there an interaction between level of stress and functional coping response in predicting with the intensity of same-day self-harm urges?

A series of four, 2-level random intercept models were calculated to explore whether functional coping dynamics (approach; avoidance; emotion regulation; reappraisal) moderate the relationship between stress level and same-day self-harm urge intensity.

5.3.4.2.1 Approach coping

There was a significant main effect of stress such that increased stress was associated with increased self-harm urge intensity. Approach coping was negatively associated with self-harm urge intensity; higher levels of approach coping were related to lower intensity self-harm urges. There was a significant stress x coping interaction (see Table 19). Approach coping moderated the relationship between stress and self-harm urge intensity such that at low levels of approach coping, the relationship between stress and same-day self-harm urge intensity was strengthened (b = 0.18, *SE* = 0.09, *z* = 1.97, *p* = .049) and at high levels of approach coping, the relationship between stress and same-day self-harm urge intensity was reduced to non-significant (b = 0.18, *SE* = 0.10, *z* = 1.78, *p* =.075) (see Figure 12).

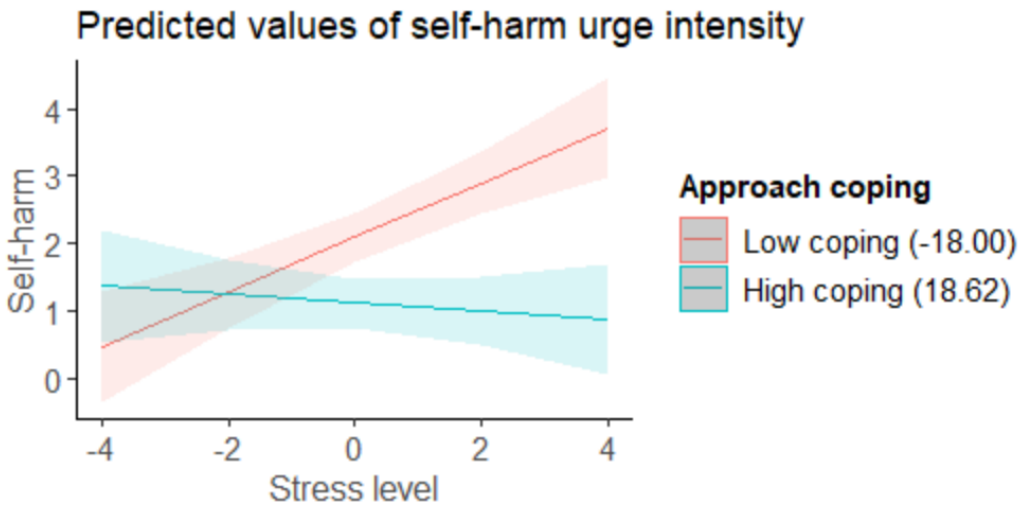


Figure 12. Predicted values of self-harm urge intensity.

5.3.4.2.2 Avoidance coping

There was a significant main effect of stress, such that increased stress was associated with increased same-day self-harm urge intensity. There was no main effect of avoidance coping on same-day self-harm urge intensity and no stress x coping interaction (see Table 19).

5.3.4.2.3 Emotion regulation coping

There was a significant main effect of stress such that increased stress was associated with increased self-harm urge intensity. Emotion regulation coping was negatively associated with self-harm urge intensity; higher levels of emotion regulation coping were related to lower intensity self-harm urges. There was a significant stress x coping interaction (see Table 19). Emotion regulation coping moderated the relationship between stress and self-harm urge intensity such that at low levels of emotion regulation coping, the relationship between stress and same-day self-harm urge intensity was strengthened (b = 0.43, *SE* = 0.10, *z* = 4.21, *p* < .001) and at high levels of emotion regulation

coping, the relationship between stress and same-day self-harm urge intensity was reduced to non-significant (b = -0.01, *SE* = 0.08, *z* = -0.12, *p* =.906) (see Figure 13).

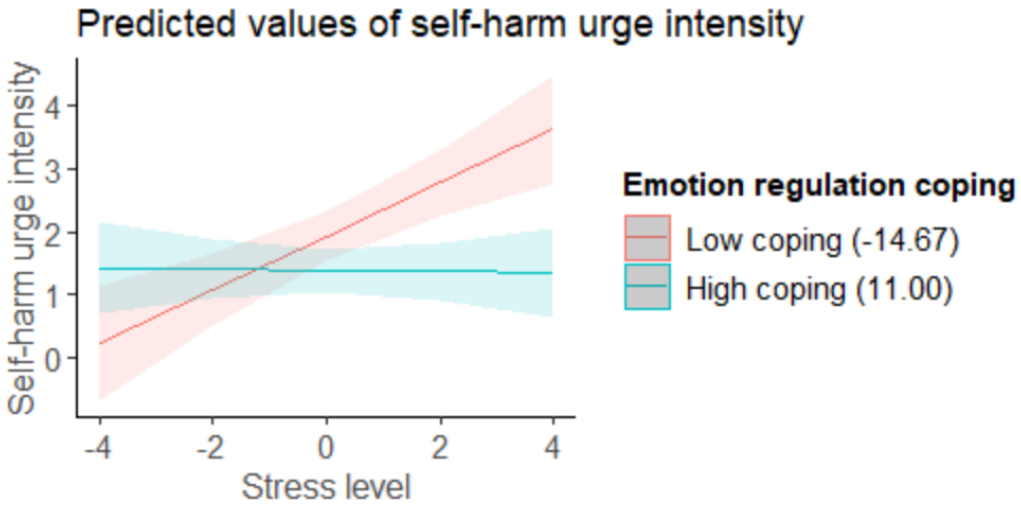


Figure 13. Predicted values of self-harm urge intensity.

5.3.4.2.4 Reappraisal coping

There was a significant main effect of stress, such that increased stress was associated with increased same-day self-harm urge intensity. There was also a significant main effect of reappraisal coping; higher levels of reappraisal coping were associated with lower same-day self-harm urge intensity. There was no significant stress x coping interaction (see Table 19).

Table 19. Is there an interaction between level of stress and functional coping response in predicting the intensity of same-day self-harm urges?

	Self-harm urge intensity				Self-harm urge intensity				Self-harm urge intensity				Self-harm urge intensity			
	β	*SE*	CI	*p*	β	*SE*	CI	*p*	β	*SE*	CI	*p*	β	*SE*	CI	*p*
(Intercept)	**1.61**	**014**	**1.35 - 1.88**	**<0.001**	**1.62**	**0.14**	**1.35 – 1.88**	**<0.001**	**1.62**	**0.14**	**1.36– 1.89**	**<0.001**	**1.62**	**0.14**	**1.36– 1.89**	**<0.001**
Stress[a]	**0.18**	**0.03**	**0.12 - 0.23**	**<0.001**	**0.18**	**0.03**	**0.13 – 0.23**	**<0.001**	**0.18**	**0.03**	**0.13 – 0.23**	**<0.001**	**0.17**	**0.03**	**0.12 – 0.23**	**<0.001**
Approach[ab]	**-0.03**	**0.01**	**-0.04 - -0.01**	**<0.001**												
Stress[a] * approach[ab]	**-0.01**	**<0.01**	**-0.02 - <-0.01**	**0.008**												
Avoidance[a]					0.01	0.01	-0.01 – 0.02	0.327								
Stress[a] * avoidance[ab]					<-0.01	0.01	-0.01 – 0.01	0.968								
Emotion regulation[ab]									**-0.02**	**0.01**	**-0.04 - <-0.01**	**0.035**				
Stress[a] * emotion regulation[ab]									**-0.02**	**0.01**	**-0.03 – <-0.01**	**0.012**				
Reappraisal[ab]													**-0.02**	**0.01**	**-0.03 - -0.01**	**<0.001**
Stress * reappraisal[ab]													<-0.01	<0.01	-0.01 – 0.01	0.460
Random Effects																
σ^2	0.90				0.93				0.92				0.92			
τ_{00}	$0.96_{participant}$				$0.97_{particiant}$				$0.98_{participant}$				$0.98_{participant}$			
ICC	0.52				0.51				0.52				0.51			
N	$57_{participants}$				$57_{participants}$				$57_{participants}$				$57_{participants}$			
Observations	651				649				659				643			
Marginal R^2 /	0.055/				0.033/				0.043/				0.043/			
Conditional R^2	0.543				0.526				0.537				0.535			
AIC	1958.84				1973.41				1990.83				1950.52			

Note. SE = Standard Error. CI = 95% Confidence Interval. [a] indicates participant mean centred, [b] indicates as measured by the FDC. Bold text indicates significant in multivariate model at $p < .05$.

Table 20. Is there an interaction between level of stress and functional coping response in predicting the difficulty in resisting self-harming?

	Difficulty to resist self-harming				Difficulty to resist self-harming				Difficulty to resist self-harming				Difficulty to resist self-harming			
	β	*SE*	CI	*p*	β	*SE*	CI	*p*	β	*SE*	CI	*p*	β	*SE*	CI	*p*
(Intercept)	**1.41**	**0.11**	**1.19 – 1.64**	**<0.001**	**1.42**	**0.12**	**1.19 – 1.65**	**<0.001**	**1.41**	**0.12**	**1.19 – 1.64**	**<0.001**	**1.42**	**0.11**	**1.19 – 1.64**	**<0.001**
Stress[a]	**0.12**	**0.02**	**0.08 – 0.17**	**<0.001**	**0.13**	**0.02**	**0.08 – 0.18**	**<0.001**	**0.13**	**0.02**	**0.08 – 0.17**	**<0.001**	**0.12**	**0.02**	**0.07 – 0.16**	**<0.001**
Approach[ab]	**-0.02**	**0.01**	**-0.03- -0.01**	**0.001**												
Stress[a] * approach[ab]	**-0.01**	**<0.001**	**-0.02 - <-0.01**	**0.017**												
Avoidance[a]					<0.01	0.01	-0.01 – 0.02	0.463								
Stress[a] * avoidance[ab]					<-0.01	<0.01	-0.01 – 0.01	0.534								
Emotion regulation[ab]									-0.01	0.01	-0.03 - 0.01	0.192				
Stress[a] * emotion regulation[ab]									-0.01	0.01	-0.02 – <0.01	0.053				
Reappraisal[ab]													**-0.02**	**0.01**	**-0.03 - -0.01**	**0.002**
Stress * reappraisal[ab]													<-0.01	<0.01	-0.01 – 0.01	0.055
Random Effects																
σ^2	0.71				0.73				0.72				0.71			
τ_{00}	$0.68_{participant}$				$0.70_{particiant}$				$0.67_{participant}$				$0.67_{participant}$			
ICC	0.49				0.49				0.49				0.49			
N	$57_{participants}$				$57_{participants}$				$57_{participants}$				$57_{participants}$			
Observations	651				648				658				643			
Marginal R^2 / Conditional R^2	0.040/ 0.511				0.023/ 0.500				0.028/ 0.505				0.029/ 0.501			
AIC	1713.35				1713.49				1729.10				1696.14			

Note. SE = Standard Error. CI = 95% Confidence Interval. [a] indicates participant mean centred, [b] indicates as measured by the FDC. Bold text indicates significant in multivariate model at $p < .05$.

5.3.4.3 Is there an interaction between level of stress and functional coping response in predicting difficulty in resisting self-harming?

A series of four, 2-level random intercept models were calculated to explore whether functional coping dynamics (approach; avoidance; emotion regulation; reappraisal) moderate the relationship between stress level and same-day difficulty in resisting self-harming.

5.3.4.3.1 Approach coping

There was a significant main effect of stress, such that increased stress was associated with increased same-day difficulty in resisting self-harm thoughts and urges. There was also a significant main effect of approach; higher levels of approach coping were associated with lower levels of difficulty in resisting self-harm. There was a significant stress x coping interaction (see Table 20); approach coping moderated the relationship between stress and difficulty resisting self-harm such that at low levels of approach coping, the relationship between stress and the difficulty level of resisting was strengthened (b = 0.18, *SE* = 0.08, *z* = 2.16, *p* = .031) and at high levels of approach coping, the relationship between stress and same-day difficulty in resisting self-harm thoughts and urges was reduced to non-significant (b = 0.08, *SE* = 0.09, *z* = 0.87, *p* =.383) (see Figure 14).

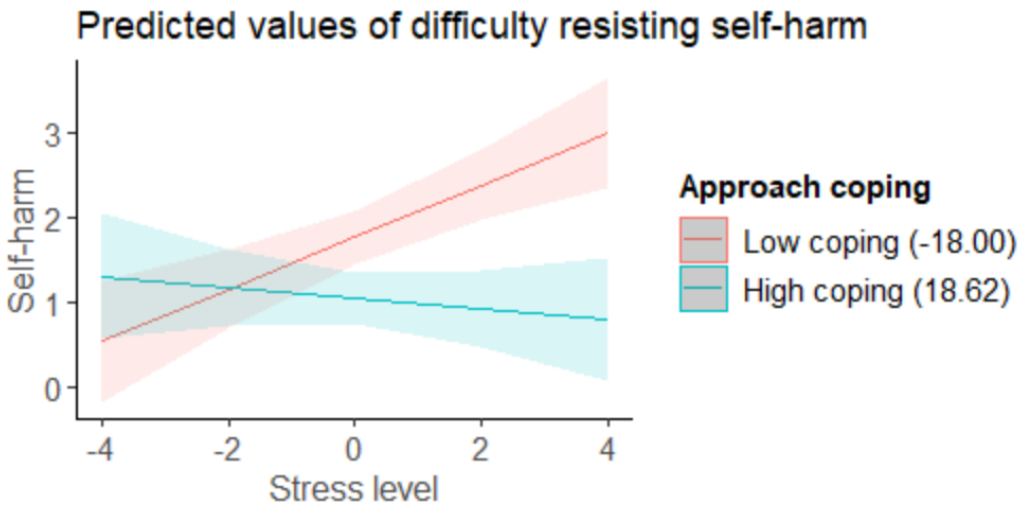


Figure 14. Predicted values of difficulty resisting self-harm.

5.3.4.3.2 Avoidance coping

There was a significant main effect of stress, such that increased stress was associated with increased difficulty in resisting self-harm thoughts. There was no main effect of avoidance coping on difficulty in resisting self-harm thoughts and no stress x coping interaction (see Table 20).

5.3.4.3.3 Emotion regulation coping

There was a significant main effect of stress, such that increased stress was associated with increased difficulty in resisting self-harm thoughts. There was no main effect of emotion regulation coping on difficulty in resisting self-harm thoughts and no stress x coping interaction (see Table 20).

5.3.4.3.4 Reappraisal coping

There was a significant main effect of stress, such that increased stress was associated with increased difficulty in resisting self-harm thoughts. There was a main effect of reappraisal coping on difficulty in resisting self-harm thoughts

such that higher levels of reappraisal were associated with lesser difficulty in resisting self-harm thoughts. There was no stress x coping interaction (see Table 20) on difficulty resisting self-harm thoughts.

Table 21. Is there an interaction between level of stress and functional coping response in predicting the time spent thinking about self-harming?

	Time thinking about self-harming				Time thinking about self-harming				Time thinking about self-harming				Time thinking about self-harming			
	β	SE	CI	*p*	β	SE	CI	*p*	β	SE	CI	*p*	β	SE	CI	*p*
(Intercept)	**1.51**	**0.12**	**1.28 – 1.74**	**<0.001**	**1.51**	**0.12**	**1.28 – 1.74**	**<0.001**	**1.51**	**0.12**	**1.28 – 1.75**	**<0.001**	**1.51**	**0.12**	**1.28 – 1.75**	**<0.001**
Stress[a]	**0.14**	**0.02**	**0.10 – 0.18**	**<0.001**	**0.14**	**0.02**	**0.10 – 0.18**	**<0.001**	**0.14**	**0.02**	**0.10 – 0.18**	**<0.001**	**0.14**	**0.02**	**0.10 – 0.18**	**<0.001**
Approach[ab]	**-0.02**	**<0.01**	**-0.03- -0.01**	**0.002**												
Stress[a] * approach[ab]	**-0.01**	**<0.01**	**-0.01 - <-0.01**	**0.035**												
Avoidance[a]					0.01	<0.01	<-0.01 – 0.02	0.143								
Stress[a] * avoidance[ab]					0.01	<0.01	<-0.01 – 0.01	0.179								
Emotion regulation[ab]									-0.01	0.01	-0.03 - <0.01	0.083				
Stress[a] * emotion regulation[ab]									-0.01	0.01	-0.02 – <0.01	0.229				
Reappraisal[ab]													**-0.01**	**<0.01**	**-0.02 - -0.01**	**0.002**
Stress * reappraisal[ab]													<-0.01	<0.01	-0.01 – 0.01	0.772
Random Effects																
σ^2	0.52				0.52				0.53				0.53			
τ_{00}	$0.75_{participant}$				$0.75_{particiant}$				$0.75_{participant}$				$0.75_{participant}$			
ICC	0.59				0.59				0.59				0.58			
N	$57_{participants}$				$57_{participants}$				$57_{participants}$				$57_{participants}$			
Observations	651				648				658				643			
Marginal R^2 / Conditional R^2	0.044/ 0.608				0.033/ 0.603				0.035/ 0.605				0.038/ 0.600			
AIC	1602.81				1613.98				1641.13				1612.03			

Note. SE = Standard Error. CI = 95% Confidence Interval. [a] indicates participant mean centred, [b] indicates as measured by the FDC. Bold text indicates significant in multivariate model at $p < .05$.

5.3.4.4 Is there an interaction between level of stress and functional coping response in predicting same-day time thinking about self-harm?

A series of four, 2-level random intercept models were calculated to explore whether functional coping dynamics (approach; avoidance; emotion regulation; reappraisal) moderate the relationship between stress level and same-day time thinking about self-harm.

5.3.4.4.1 Approach coping

There was a significant main effect of stress, such that increased stress was associated with increased same-day time thinking about self-harm. There was also a significant main effect of approach; higher levels of approach coping were associated with lower amounts of time thinking about self-harm. There was a significant stress x coping interaction (see Table 21); approach coping moderated the relationship between stress and time spent thinking about self-harm such that at low levels of approach coping, the relationship between stress and time spent thinking about self-harming was strengthened (b = 0.28, *SE* = 0.07, *z* = 4.16, *p* < .001) and at high levels of approach coping, the relationship between stress and same-day time spent thinking about self-harm was reduced to non-significant (b < -.001, *SE* = 0.07, *z* = -0.01, *p* =.994) (See Figure 15).

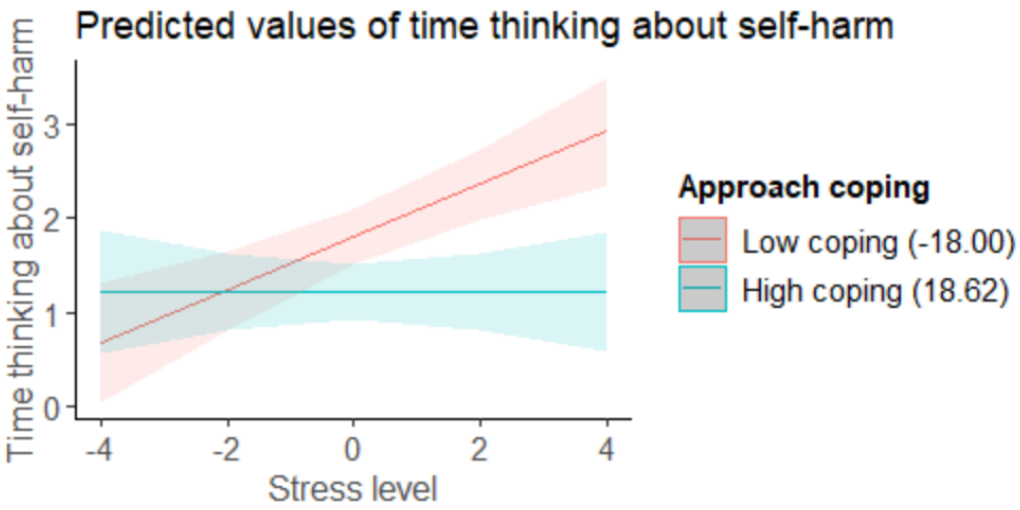


Figure 15. Predicted values of time thinking about self-harm.

5.3.4.4.2 Avoidance coping

There was a significant main effect of stress, such that increased stress was associated with increased same-day time thinking about self-harm. There was no significant main effect of avoidance coping and no significant stress x coping interaction (see Table 21).

5.3.4.4.3 Emotion regulation coping

There was a significant main effect of stress, such that increased stress was associated with increased same-day time thinking about self-harm. There was no significant main effect of emotion regulation coping and no significant stress x coping interaction (see Table 21).

5.3.4.4.4 Reappraisal coping

There was a significant main effect of stress, such that increased stress was associated with increased same-day time thinking about self-harm. There was a significant main effect of reappraisal coping such that higher levels of

reappraisal coping were associated with lower levels of same-day time thinking about self-harm. There was no significant stress x coping interaction (see Table 21) on time spent thinking about self-harm.

Table 22. Is there an interaction between level of stress and functional coping response in predicting the overall intensity of same-day self-harm experience?

	Overall intensity of self-harm experience				Overall intensity of self-harm experience				Overall intensity of self-harm experience				Overall intensity of self-harm experience			
	β	SE	CI	*p*	β	SE	CI	*p*	β	SE	CI	*p*	β	SE	CI	*p*
(Intercept)	**1.59**	**0.13**	**1.34 – 1.85**	**<0.001**	**1.59**	**0.13**	**1.34 – 1.85**	**<0.001**	**1.59**	**0.13**	**1.34 – 1.85**	**<0.001**	**1.59**	**0.13**	**1.34 – 1.85**	**<0.001**
Stress[a]	**0.16**	**0.02**	**0.12 – 0.20**	**<0.001**	**0.16**	**0.02**	**0.11 – 0.20**	**<0.001**	**0.16**	**0.02**	**0.12 – 0.20**	**<0.001**	**0.16**	**0.02**	**0.11 – 0.20**	**<0.001**
Approach[ab]	**-0.02**	**0.01**	**-0.03 - -0.01**	**0.003**												
Stress[a] * approach[ab]	**-0.01**	**<0.01**	**-0.02 - <-0.01**	**0.002**												
Avoidance[a]					<0.01	0.01	-0.01– 0.01	0.723								
Stress[a] * avoidance[ab]					<0.01	<0.01	-0.00 – 0.01	0.354								
Emotion regulation[ab]									**-0.02**	**0.01**	**-0.03 – -0.01**	**0.028**				
Stress[a] * emotion regulation[ab]									**-0.01**	**0.01**	**-0.02 - <-0.01**	**0.024**				
Reappraisal[ab]													**-0.02**	**<0.001**	**-0.03 - -0.01**	**<0.001**
Stress * reappraisal[ab]													<-0.01	<0.001	-0.01 – <0.01	0.208
Random Effects																
σ^2	0.60				0.60				0.60				0.60			
τ_{00}	$0.91_{participant}$				$0.91_{participant}$				$0.91_{participant}$				$0.90_{participant}$			
ICC	0.60				0.60				0.60				0.60			
N	$57_{participants}$				$57_{participants}$				$57_{participants}$				$57_{participants}$			
Observations	652				649				659				644			
Marginal R^2 /	0.048/				0.031/				0.040/				0.044/			
Conditional R^2	0.623				0.613				0.620				0.619			
AIC	1713.35				1713.49				1729.10				1696.14			

Note. SE = Standard Error. CI = 95% Confidence Interval. [a] indicates participant mean centred, [b] indicates as measured by the FDC. Bold text indicates significant in multivariate model at $p < .05$.

5.3.4.5 Is there an interaction between level of stress and functional coping response in predicting the overall intensity of same-day self-harm experience?

A series of four, 2-level random intercept models were calculated to explore whether functional coping dynamics (approach; avoidance; emotion regulation; reappraisal) moderate the relationship between stress level and overall intensity of self-harm experience (taking into account thought intensity; urge intensity; difficulty to resist and time spent thinking about self-harm).

5.3.4.5.1 Approach coping

There was a significant main effect of stress, such that increased stress was associated with increased intensity of same-day overall self-harm experience. There was also a significant main effect of approach; higher levels of approach coping were associated with a lower intensity of overall self-harm experience. There was a significant stress x coping interaction (see Table 22); approach coping moderated the relationship between stress and the intensity of same-day self-harm experience such that at low levels of approach coping, the relationship between stress and the intensity of same-day self-harm experience was strengthened (b = 0.38, *SE* = 0.07, *z* = 5.20, *p* < .001) and at high levels of approach coping, the relationship between stress and the intensity of same-day self-harm experience was reduced to non-significant (b = -.07, *SE* = 0.08, *z* = -0.87, *p* =.383) (see Figure 16).

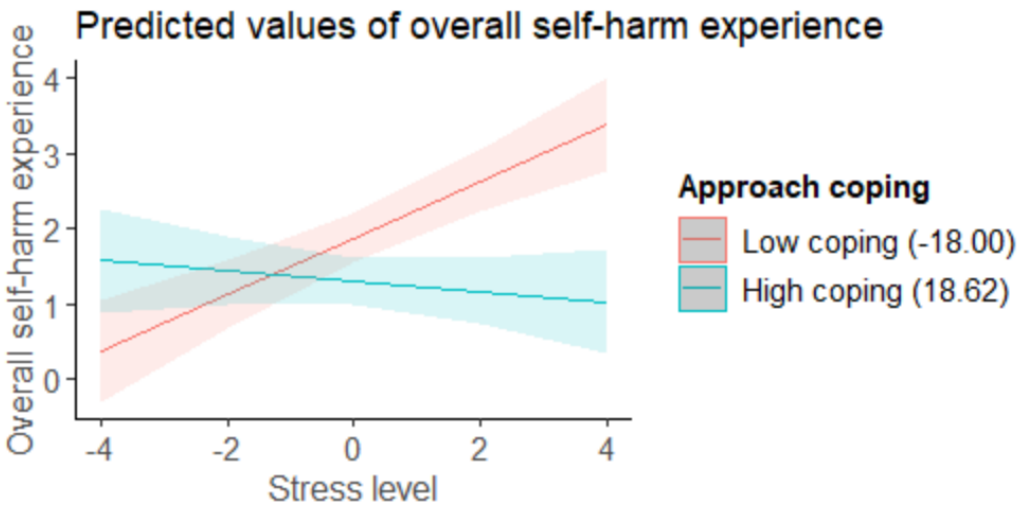


Figure 16. Predicted values of overall self-harm experience.

5.3.4.5.2 Avoidance coping

There was a significant main effect of stress, such that increased stress was associated with increased intensity of same-day overall self-harm experience. There was no significant main effect of avoidance coping and no stress x coping interaction on the overall intensity of self-harm experience (see Table 22).

5.3.4.5.3 Emotion regulation coping

There was a significant main effect of stress, such that increased stress was associated with increased intensity of same-day overall self-harm experience. There was also a significant main effect of emotion regulation coping; higher levels of emotion regulation coping were associated with a lower intensity of overall self-harm experience. There was a significant stress x coping interaction (see Table 22); emotion regulation coping moderated the relationship between stress and the intensity of same-day self-harm experience such that at low levels of emotion regulation coping, the relationship between

stress and the intensity of same-day self-harm experience was strengthened (b = 0.34, *SE* = 0.08, *z* = 4.13, *p* < .001) and at high levels of emotion regulation coping, the relationship between stress and the intensity of same-day self-harm experience was reduced to non-significant (b = 0.02, *SE* = 0.06, *z* = 0.34, *p* =.737) (see Figure 17).

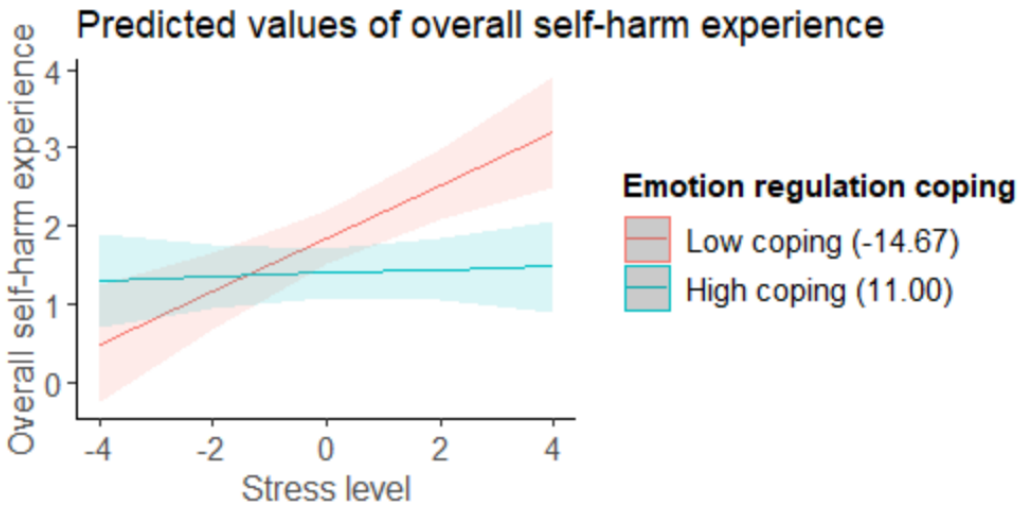


Figure 17. Predicted values of overall self-harm experience.

5.3.4.5.4 Reappraisal coping

There was a significant main effect of stress, such that increased stress was associated with increased intensity of same-day overall self-harm experience. There was also a significant main effect of reappraisal coping; higher levels of reappraisal coping were associated with a lower intensity of overall self-harm experience. There was no significant stress x coping interaction on the intensity of overall self-harm experience (see Table 22).

5.4 Discussion

The findings from the current study indicate that, in relation to research question one, functional coping dynamics, stress, and self-harm experience (e.g., thoughts; urges) all exhibited marked day-to-day variability (43%-80%). In addition to adding to the justification for micro-longitudinal assessment being well-placed to study these phenomena (i.e., such designs are appropriate when factors of interest fluctuate over short timeframes), these findings of short-term, within-person variability suggest that functional coping dynamics are indeed dynamic – or more state-like – in nature (Cox & Ferguson, 1991; Ferguson & Cox, 1997). The transient nature of self-harm experiences is in line with previous research (e.g., Kleiman et al., 2017).

Secondly, the research sought to determine whether functional coping dynamics moderate the relationship between stress and self-harm behaviour. Here, approach, emotion regulation, and reappraisal coping moderated the relationship between stress and self-harm such that at low levels of coping, the relationship between stress and same-day self-harm was positive and at high levels of coping, the relationship was inversed (approach) or attenuated (emotion regulation; reappraisal). There was some evidence that participants were more likely to self-harm in high stress situations. It is of interest to note that there were no main effects of coping and no interaction between stress level and avoidance coping. On high stress days, for that individual (i.e., relative to their mean), high levels of approach, emotion regulation, and reappraisal coping, for that individual, appear protective.

Thirdly, the research sought to address whether functional coping dynamics moderate the relationship between stress and broader self-harm experience (i.e., thoughts; urges; difficulty to resist; time thinking about self-harm and overall intensity of self-harm experience). There were no significant stress x coping interactions in the prediction of same-day self-harm thought ("yes"/ "no"). Across the four models there was a main effect of stress, such that higher stress increased the likelihood of same-day self-harm thought(s). There was also a main effect of reappraisal coping; higher levels of reappraisal coping (for that individual, i.e., relative to their mean) reduced the likelihood of self-harm thought(s).

Considering the intensity of self-harm experiences, for both self-harm thought and self-harm urge intensity, approach and emotion regulation coping moderated the positive relationship between stress and self-harm experience such that at low levels of coping, the relationship was strengthened and at high levels of coping, the relationship was not significant. Across the eight models, stress was positively predictive of the intensity of self-harm experience (thought; urge). Further, there were main effects of approach and reappraisal coping such that higher levels of these functional coping dynamics were associated with reduced intensity of self-harm experience (thought; urge). Higher emotion regulation coping was associated with lower self-harm urge intensity, but not thought intensity. There was no main effect of avoidance coping for self-harm thought or urge intensity. A consistent pattern of findings was observed for overall intensity of self-harm experience and for self-harm urges.

There was a significant stress x approach coping interaction in the prediction of same-day time thinking about self-harm; at low levels of approach coping, the positive relationship between stress and time thinking about self-harm was strengthened, whereas at high levels of coping the relationship was not significant. There was a main effect of approach coping such that higher levels of approach coping were associated with reduced amounts of time thinking about self-harm. Stress was positively predictive of time spent thinking about self-harm in all models. No other functional coping dynamics moderated the relationship between stress and time spent thinking about self-harm. There was no main effect of avoidance or emotion regulation coping on time thinking about self-harm. Increased reappraisal coping was associated with reduced time spent thinking about self-harm. The same pattern was observed in the results when difficulty resisting self-harm thoughts was the outcome of interest (i.e., dependant variable).

Taken together, results suggest that on days where the participant faced a higher stress event (for them), higher levels (for them) of approach, emotion regulation, and reappraisal coping may be protective in terms of self-harm, with coping in essence 'buffering' against the effects of stress. Approach coping may be particularly important on high stress days, given that the moderation effect reversed the direction of the effect of stress on self-harm behaviour. Considering broader self-harm experience (thought, "yes/ "no"; thought intensity; urge intensity; time spent thinking; difficulty resisting and overall intensity), high levels of reappraisal coping and approach coping (except for thought "yes"/ "no") appear to be protective, regardless of the stress level faced. There is some evidence for the protective nature of emotion

regulation coping (urge intensity; overall intensity). Approach coping buffers the effect of high stress on self-harm experiences (thought, “yes/ “no”; thought intensity; urge intensity; time spent thinking; difficulty resisting and overall intensity) and emotion regulation buffers the effects of stress on intensity of experience (thought intensity; urge intensity; overall intensity).

There is mixed evidence regarding the use of cognitive coping strategies by those who self-harm; Czyz et al. (2019) suggest that young people with a history of suicidal thoughts and behaviours typically rely on non-cognitive coping strategies (but found no significant relationships between coping strategies and engaging in NSSI). In contrast, Nock et al. (2009) report that instead of engaging in an act of non-suicidal self-injury (when they had a thought to engage in an act of non-suicidal self-injury), adolescents most commonly reported trying to change their thoughts (as a successful alternative to NSSI). The results of the current study suggest that some cognitive coping strategies (e.g., reappraisal) might be associated with decreased self-harm thoughts and behaviour; supporting the development of such strategies might be important in helping people who self-harm to best deal with their experiences and minimise the likelihood of, for example, more intense thoughts and urges. However, some caution in interpretation is warranted given: (i) the predominantly small effect sizes observed, and (ii) recognition that it is an assumption that those who self-harm would feel that reduced intensity of thoughts and urges, reduced frequency of self-harm behaviour (etc.) are desired, or indeed the most desired, outcomes. Indeed, empirical evidence suggests that those who self-harm might have very divergent opinions

regarding what outcomes are markers of 'success' (in trials, but with implications for research across the field) (Owens et al., 2020).

It is interesting to note the lack of effects observed for avoidance coping across dependant variables, given associations between avoidance and self-harm in between-groups research (e.g., see Study 1, Study 2, Study 3). Previous micro-longitudinal research has found that NSSI thoughts (fleeting and persistent) and intense urges were positively associated with same-day perceived stress and avoidant coping. However, avoidant coping was not predictive of NSSI behaviour when experiencing same-day thoughts (fleeting or persistent) or intense urges (Turner et al., 2019).

Previous micro-longitudinal work exploring coping in relation to self-harm thoughts and behaviours has either recruited from a clinical sample, hospitalised for suicidal thoughts and behaviours (Czyz et al., 2019), or recruited within the community, but with inclusion criteria around: (i) having a history of NSSI/ NSSI thoughts, and (ii) this history being recent (Nock et al., 2009; Turner et al., 2019) [29]. This study recruited via the community. Initially ethical stipulations meant that we could not target recruitment; we recruited participants regardless of their self-harm history (or lack thereof). Ethical approval was subsequently granted to permit targeted recruitment of those with (lifetime) histories of self-harm. As a result of a lack of stringent inclusion criteria regarding having experienced self-harmful thoughts or behaviours and

[29] Inclusion criteria specify:
(i) experiencing NSSI thoughts in the past 2 weeks (Nock et al., 2009, p. 819).
(i) ≥ 10 lifetime episodes of NSSI; (ii) ≥ one episode of NSSI in the past year; and (iii) thoughts about, urges for, or engagement in NSSI in the past 2 weeks (Turner et al., 2019, p. 1335).

when such an experience occurred, only five participants reported that they had self-harmed within the month prior to entering the study.

Given this, a surprising number of self-harm thoughts and behaviours were captured in the daily diary study. For example, self-harm was recorded in 62 diary entries (9.0%), across 18 participants (31.58%); self-harm thoughts were reported on 175 days (25.4%; missing data: n = 6, 0.9%), across 37 participants (64.91%); difficulty in resisting self-harm was reported on 112 days (16.3%; missing data: n = 8, 1.2%), across 28 participants (49.12%). This may suggest that: (i) the resolution of self-harm is not as simple as time elapsed since the last episode of self-harm, and (ii) it is of importance to capture and explore ideation – and associated experiences – as well behaviour, to develop a more comprehensive understanding. In a study of comparable observation numbers (N = 650 compared to N = 688 in the current study) only 36 days of NSSI data were reported by youth in the 4 weeks following discharge from hospitalisation for suicidal risk (Czyz et al., 2019). While members of the clinical sample are deemed 'high risk', the community sample in the present study arguably would not usually be. This points to the need to not overlook the prevalence and severity of self-harm experience in the community, both in research and in intervention planning.

Power calculations in micro-longitudinal research are challenging, given the nested structure of the data and the serial dependence typical of this data type (Lafit et al., 2020). Further, adequately powering a study to assess for interactions can be difficult to achieve. The sample size in the current study was comparable to that achieved by Czyz et al. (2019) in terms of number of observations (and larger in terms of participants). As fleeting thoughts and

NSSI behaviour were measured at the daily level (and this is therefore the lowest possible level of aggregation for this data), a comparable sample size was achieved to that of Turner et al. (2019) in terms of these dependant variables. Nock et al. (2019) utilised a more intensive assessment schedule (twice daily signal contingent responding, in addition to event contingent responding) and therefore, while their sample size is lower, their number of observations (1,262 thought and behaviour episodes) is markedly higher than achieved in the current study.

The study highlights a number of implications and considerations for both existing and future research. Firstly, the inconsistency of self-reported lifetime self-harm estimated between time one and time two questions the extent to which such metrics can be relied upon as accurate information. While the limitations of retrospective self-report are well known (e.g., Hassan, 2005), the inconsistency of reporting within the current study represents a statistically significant difference. This has implications for work which considers the lifetime frequency of engagement (e.g., Study 1; Chapter 2). Secondly, while previous work has considered how people cope with self-harm thoughts, only three people wrote about self-harm related content in their description of the stressor that they had faced that day[30]; therefore participants who were experiencing self-harm thoughts, urges, and/or behaviours on the whole did not consider these to be the primary stressor faced during that day. Thirdly, our findings point to the value of asking about both intention to live and intention

[30] "Accidentally seeing multiple graphic images of self harm online" [ID:1058].
"….cut myself…" [ID:1063].
"Taking through difficult topics during class such as personal growth, self harm and other matters" [ID: 1067].

to die in a none dichotomous manner and the importance of ascertaining the certainty with which a participant (or client) is making this judgement/ these judgements.

5.4.1 Limitations

While micro-longitudinal, daily diary assessment permits exploration of the effects of same-day stress and coping on self-harm experience, more fine-grained temporal analysis was beyond the scope of the current study. That is to say, it is not possible to determine whether the reported self-harm experience happened before, during, or after the stressor encountered. A more intensive assessment schedule may be needed to tease apart sequencing dynamics. However, the primary decision to utilise daily diary, as opposed to EMA methodology, was made as it was felt that this maximised the opportunity to capture the phenomena of interest (i.e., that participants would have faced a stressor that they had had to cope with) while minimising burden on participants. An alternative would, therefore, be to simply ask participants during the daily diary assessment to indicate if any reported self-harm experience occurred before, during, or after the stressor described (with an appreciation that experiences might span these time points).

Secondly, while real-time, or near real-time, assessment methods have been shown to: (i) reduce the influence of recall biases, and (ii) increase reliability and ecological validity (Hufford, 2007), it is important to remain cognisant that the data remains based on self-report and, consequently, inherently subject to the well-established limitations associated with such data (e.g., Hassan, 2005). Specifically related to this study, it is important to

consider the extent to which individuals may have access to the motivational antecedents of their coping cognitions and behaviours; why people did what they did might be outside of their conscious awareness.

Thirdly, it is important to consider the extent to which assessment may, inadvertently, be intervention. Through undertaking the current daily diary study participants were required to describe a stressor faced that day, how they dealt with that stressor (cognitively and behaviourally), to reflect on their coping and how they feel. This type of daily writing arguably falls between expressive writing – describing something that has been playing on your mind – and daily journaling – recalling the events of a day in a matter of fact manner, without emotional content. In an RCT designed to evaluate Autobiographical Self-Enhancement Training (ASET), daily journaling was demonstrated to reduce suicidal ideation, relative to expressive writing, at the end of treatment and 3-month follow-up (Hooley et al., 2018). Future work may, therefore, seek to extend the current study by exploring *how* participants use the daily diary and modelling these potential subgroups.

Finally, it is important to remain mindful that many of the effects reported, while statistically significant, are small. Furthermore, AICs indicate that there is scope for improvement in model fit, particularly in the prediction of broader self-harm experiences (e.g., thought intensity; time thinking about self-harm).

5.5 Conclusions

Notwithstanding these limitations, the study offers insight into the relationship between stress, coping and same-day self-harm experience at the within-person

level. Results of this study provide evidence of day-to-day variability in stress, coping and self-harm experience(s). Findings indicate that coping (approach; emotion regulation; reappraisal) moderates the relationship between stress and many self-harm experiences. On difficult days, high approach, emotion regulation, and reappraisal coping, for that individual, may be particularly important for buffering the negative effects of stress (interaction) and protecting against self-harm experience regardless of stress level (approach; reappraisal: main effect).

5.6 Summary

Background. Self-harm can be understood as enabling coping, at least in the short term. While micro-longitudinal research has brought important advances in understanding between and within-person processes over short periods, no research has explored functional coping dynamics using a repeated daily diary design. Such a design, with longitudinal follow-up, permits exploration of the nature of self-harm experience over time and the dynamics underpinning key transitions (e.g., from thoughts to behaviour).

Methods. Young adults (N = 57) completed baseline measures of self-harm and daily measures of stressors, coping, and self-harm experience(s). Participants completed a 7-to-10-day, daily diary protocol at two time periods (to capture variability in stress), 12 months apart.

Results. Data were analysed via multilevel models. Participants were more likely to report higher intensity thoughts of, and urges to, self-harm in higher stress situations and when reappraisal coping was lower (for that individual). Approach and emotion regulation coping functions moderated the positive relationship between stress and self-harm thought and urge intensity. Here, at low levels of coping the relationship between stress and self-harm thoughts was strengthened. However, the relationship was attenuated at high levels of coping. There was some evidence that participants were more likely to self-harm in high stress situations. Approach, emotion regulation, and reappraisal coping moderated the relationship between stress and self-harm such that at low coping, the relationship between stress and self-harm was positive but the direction of these relationships was inversed (approach) or attenuated (emotional regulation; reappraisal) at high levels of coping. Avoidance coping did not predict self-harm thoughts or behaviour.

Discussion. These findings provide novel insights into the complex dynamics between stress and coping underpinning self-harm experiences.

The research presented in Chapter 6 is published in:

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Wadman, R., **Nielsen, E.,** Brown, K.,[ǂ] Williams, A. J.,[ǂ] O'Raw, L., Sayal., K. & Townsend, E. (2020). *"These things don't work".* Young people's views on harm minimisation strategies as a proxy for self-harm: a mixed methods approach. *Archives of Suicide Research, 24*(3), 384-401. https://doi.org/10.1080/13811118.2019.1624669

Chapter 6. *"THESE THINGS DON'T WORK."* YOUNG PEOPLE'S VIEWS ON HARM MINIMISATION AS A PROXY FOR SELF-HARM: A MIXED METHODS APPROACH

- Chapters 3 and 5 explored factors associated with thinking about self-harm and those associated with acting upon such thoughts, including consideration of how people deal with difficult days (functional coping dynamics).
- A natural 'next step' with this is to consider interventions which aim to: (i) prevent the transition from ideation to enactment, and/or (ii) reduce the (medical) severity of acting upon self-harm thoughts.
- This chapter considers young people's experiences of 'harm minimisation'.

6.1 Introduction

Self-harm is a common reason for young people presenting to general hospital and specialist mental health services (Shanmugavadivel, Sands & Wood, 2014; Stafford et al., 2014). However, the majority of self-harm episodes do not receive medical attention. Using the Multicentre Study of Self-harm hospital monitoring data, national mortality data, and community data derived from a school-based study, Geulayov and colleagues (2018) estimated that for every young person (12–17 years) who dies by suicide, approximately 370 young people present to general hospital emergency departments following an episode of self-harm, and 3,900 adolescents self-harm in the community[31]. Thus self-

[31] Of note, these estimates vary dependent on age (12–14 years versus 15–17 years) and gender (male versus female).

harm often remains hidden, with young people preferring to seek help informally from peers and family, or indeed not disclosing their self-harm to anyone (McDougall et al., 2010; Rowe et al., 2014). It is vital to ensure that adolescents can access the most appropriate clinical support(s) available.

The use of 'harm minimisation' strategies for self-harm is advocated both in clinical practice and in readily available sources of information regarding self-harm management and recovery in the public sphere (e.g. websites; help sheets; support groups). Currently, a clear definition of what harm minimisation for self-harm actually constitutes is lacking (National Collaborating Centre for Mental Health, 2011), but the majority of harm minimisation strategies for self-harm appear, *in practice,* to relate to four broad categories, given in Table 23. These categories were devised by the authors based on the use of the term in self-harm peer-reviewed and grey literature. These harm minimisation strategies aim to either: (i) replace self-harm with a 'safer' proxy behaviour, or (ii) to reduce the medical severity of self-harm.

Table 23. Taxonomy of harm-minimisation strategies for self-harm.

Strategy	Description	Examples
Sensation proxies	Strategies that aim to replace existing self-harm with 'safer' proxies of the physical sensation.	Snapping elastic bands against the skin, squeezing ice cubes.
Process proxies	Strategies that aim to replace existing self-harm with 'safer' proxies of the process/ experience around self-harm.	Drawing red lines on the skin in the places you would otherwise cut.
Harm reduction	Strategies that aim to ensure that the same method of self-harm has less medically severe consequences.	Considering the location of injuries to minimise potential adverse medical consequences (and the provision of basic anatomical information to facilitate this), using sterile blades.
Damage limitation	Providing information around the management of injuries.	Wound care (promoting healing and reducing the risk of infection), self-management of less medically severe injuries, appropriate help-seeking.

Note. While conceptualisations of harm minimisation vary in scope and operationalisation, notions typically emphasise a practical and non-judgemental approach – to maximise safety, empowerment and self-management – while neither encouraging nor condoning self-harm. In broader definitions, 'harm minimisation' may include: reducing access to potential means of self-harm

(such as limiting access to medication; the removal of sharp objects) (McDougall et al., 2010), and avoiding intoxicants which have the potential to lower inhibitions (National Collaborating Centre for Mental Health, 2011). Coping and distraction – strategies that aim to delay behaviour engagement, support alternative coping strategies, self-soothing or distraction (such as listening to a favourite song or taking a bath) – may also be viewed, by some, to fall under the umbrella of 'harm minimisation' for self-harm. Recently, it has been suggested that sensation and process proxies of self-harm may be viewed as – or termed – 'substitution' methods, as opposed to the more commonly used phrases of 'harm reduction' or 'harm minimisation' strategies (Dickens & Hosie, 2018).

NICE (National Institute for Health and Care Excellence) clinical guidelines in the UK make tentative clinical practice recommendations for harm minimisation in cases where self-harm is likely to be repeated – as part of a broader multidisciplinary approach and with the clear message that self-poisoning with any substance cannot be done 'safely' (National Collaborating Centre for Mental Health, 2011). This recommendation was based on a very small number of studies: an audit of self-harm incidents in women's units operating a positive risk-taking approach to self-harm (Birch et al., 2011); a retrospective analysis of self-harm incidents on an adolescent inpatient unit following the introduction of a policy advocating harm minimisation (Livesey, 2009); and a study of professionals' and service users' views of harm minimisation in the development of a self-harm handbook for primary care (Pengelly et al., 2008). No Randomised Control Trials (RCTs) or cohort studies have evaluated the therapeutic value of harm minimisation in any age group,

and no studies constituted ‘evidence’ according to the criteria outlined for the NICE guidelines. Thus, recommendations were based on the weight of empirical support for harm minimisation approaches in other fields. There remains a paucity of evidence assessing the effectiveness and application of these strategies or identifying individual characteristics which might contribute to any success of the approach (Fish et al., 2012; National Collaborating Centre for Mental Health, 2011). The guidelines suggest the need for studies to investigate different approaches to harm reduction following self-harm in clinical settings, including service users’ experiences (National Collaborating Centre for Mental Health, 2011).

The focus of this study is harm minimisation strategies as sensation or process proxies for self-harm (e.g. snapping elastic bands on skin; drawing on skin with red ink – see Table 23). Such strategies are often advocated as an alternative to self-harm, but there are also concerns that they are potentially risky (Livesey, 2009; Pengelly et al., 2008). Given the lack of research examining harm minimisation strategies to simulate or replace self-harm, this paper draws on the views of young people (11- to 25-year-olds) with experience of self-harm, utilising data from two studies undertaken concurrently by the same UK-based research group. Study 5a presents data from a large online survey about self-harm, in which behaviours which could be regarded as harm minimisation strategies (understood for the purposes of this study as sensation or process proxies) were identified during descriptive analysis and quantification of: (i) open-ended responses to the “other” self-harm category of the self-harm inventory, and (ii) during the description of coping behaviours used to deal with the most significant recent stressor faced

(last 3 months). In Study 5b, secondary thematic analysis was used to explore young people's perceptions of harm minimisation strategies as reported in qualitative interviews focused broadly on the experience of self-harm and stopping self-harm. This exploratory mixed methods approach (convergent design) is a suitable first step in a greatly under-researched area (Creswell & Plano Clark, 2011). Secondary data analysis allows researchers to use existing data to answer new research questions beyond the primary focus of the original research and can provide novel insights from in-depth and time-consuming research with 'hard-to-reach' groups (Owens et al., 2016). Given the evidence gap regarding harm minimisation for self-harm, it is appropriate to utilise secondary analysis of both qualitative and quantitative data to explore young people's perceptions on this topic (Creswell & Plano Clark, 2011).

6.2 Study 5a: Survey study

Study 5a explored whether young people with a history of self-harm reported harm minimisation used*:* (i) as a form of self-harm, or (ii) as a form of coping, which was not considered to be self-harm, when not explicitly prompted.

6.2.1 Method

6.2.1.1 Participants

Participants (N = 758) were selected from a larger study and were eligible for inclusion if: (i) they were aged between 16 and 25 years (M = 17.78, SD = 2.12) and, (ii) reported having ever self-harmed. The majority of the sample was female (86.4%; male, 9.0%; not disclosed, 4.6%). Primary analysis of these data is reported elsewhere (Nielsen et al., 2016; Nielsen et al., 2017) (see

Chapters 2 and 3). These primary analyses investigated: (i) the relationship between experiential avoidance, functional coping dynamics and the recency and frequency of self-harm, and (ii) whether coping predicts self-harm experience (no self-harm experience; ideation; enactment), in those with a history of self-harm.

6.2.1.2 Procedure

Self-report questionnaires were administered via a cross-sectional online survey. The community-based sample was recruited through social media (e.g., Twitter; Facebook), online platforms (e.g., Reddit), e-mail listings (e.g., Self injury Support UK), poster advertisements, and the School of Psychology's Research Participation Scheme (University of Nottingham). The study was advertised as "part of an on-going project investigating coping function and self-harmful behaviours". While all advertising materials highlighted that we were "recruiting participants who have never self-harmed, as well as those who have", we deliberately adopted a recruitment strategy in order to achieve a sufficiently large sample of people with a history of self-harm to meaningfully conduct our planned analyses with adequate statistical power. The work received ethical approval from the University of Nottingham, School of Psychology Ethics Committee (Ref. 446, 335R). All participants provided written informed consent.

6.2.1.3 Measures

6.2.1.3.1 Demographic factors

Age and gender demographics were captured.

6.2.1.3.2 Self-harm

The Inventory of Statements about Self-Injury (ISAS: section one) was administered to assess lifetime history of self-harm (Klonsky & Glenn, 2009; Klonsky & Olino, 2008). This captures the frequency of engagement across 12 behaviours (e.g., banging/ hitting self; biting; burning). Importantly for our current aim, the measure includes an "other" self-harm category, allowing free text report of self-harm behaviours. These data were analysed in the present study. The need for the self-harm to have been enacted in the absence of suicidal intent was omitted, given that recent empirical evidence suggests a continuum of suicidal intent (Orlando et al., 2015).

6.2.1.3.3 Coping

The Functional Dimensions of Coping scale (FDC: Ferguson & Cox, 1997) was administered to capture a stressful or distressing situation that participants had recently faced (last 3 months). Importantly for the aims of the current study, the measure permits for free response reporting of individual coping responses (e.g., cognitions; behaviours). Reponses to section two ("This section concerns the behaviours you adopted in attempting to deal with the major stressor you described above. There are many different ways of dealing with stress. In the space provided below I would like you to give a brief description of those activities and/or thoughts you used in attempting to deal with the event described above.") were analysed in the present study.

6.2.1.4 Data Analysis

The self-harm behaviours reported in the ISAS "other" category were examined and categorised by EN, in order to assess the frequency with which behaviours commonly considered harm minimisation strategies (sensation proxies; process proxies) were reported by young people as forms of self-harm. All responses could be categorised. In order to retain the specific details of the "other" behaviours described by respondents, many behaviours were categorised individually (i.e., frequency of one) rather than collapsing into broader categories. Multi-faceted behaviours were indicated in more than one category. Lifetime frequency of engagement in these behaviours was also considered. The coping responses reported in the FDC were reviewed and any responses that could be considered harm minimisation strategies (as sensation or process proxies) were flagged. These responses were then categorised in order to assess the frequency with which sensation and process proxies (e.g. elastic band snapping; drawing on skin with red pen) were reported as coping responses, but were not considered to be a form of self-harm, by young people. All these responses could be categorised into discrete categories.

6.2.2 Results

The majority of the sample reported high frequencies of self-harm. Over 40% (n = 336, 44.3%) of participants reported 101-500 self-harm episodes during their lifetime, with a third (n = 250, 33.0%) having self-harmed more than 500 times. Around 20% of participants reported engaging 100 times or less (1-5 episodes, 1.5%, n = 11; 6-50 episodes, 10.6%, n = 80; 51-100 episodes, 10.7%, n = 81).

Table 24. Self-harm methods reported by participants in Study 5a and Study 5b.

Self-harm method (ever used)	Study 5a (*N* = 758)	Study 5b (*N* = 45)
	Percentage	Percentage
Cutting	91.8%[ǂ]	91.1%
Interfering with wound healing	77.2%	22.2%
Severe scratching	73.6%	44.4%
Banging or hitting self	72.3%	46.7%
Pinching	60.8%	-
Biting	58.2%	24.4%
Burning	52.1%	31.1%
Pulling hair	48.7%	15.5%
Carving	38.4%	-
Self-poisoning[a,b]	36.0%	60.0%
Rubbing skin against rough surfaces/glass/sandpaper	35.2%	11.1%
Sticking self with needles/sharp objects	34.6%	20.0%
Other	16.0%	28.9%

Note. Participants indicated self-harm behaviours which they had ever engaged in – therefore, many participants are indicated in more than one group. Different self-harm checklists were used in Study 5a and Study 5b. [ǂ] *n* = 757 (one participant did not complete this item). [a] In Study 5a, this item was phrased as, "swallowing dangerous substances". [b] In Study 5b, this item was phrased as, "poisoning yourself/ overdose".

Self-cutting was the most frequently reported method of self-harm (91.8%) with interfering with wound healing, severe scratching, and banging or hitting oneself also being highly prevalent. More than one third of participants reported having swallowed dangerous substances (see Table 24).

6.2.2.1 Harm minimisation viewed as a form of self-harm

One hundred and twenty-one participants (16.0%) reported an "other" behaviour which they viewed as self-harm, in response to the lifetime ISAS. One hundred and eleven of these participants indicated what this "other" self-harm behaviour was (see Table 25). The majority of these related to eating behaviours (food restriction; binging and purging; "eating disorder"; Diabulimia). The next most commonly reported "other" self-harm behaviour was snapping elastic bands against the skin (16.2%, 2.37% of the total study sample). Fifteen participants gave an indication of lifetime frequency of engaging in harm minimisation strategies as self-harm, reporting engaging in these behaviours between 1-1000 times, representing between 0.5% to 46.5% of their total lifetime self-harm. Thus, reports of snapping an elastic band as a form of self-harm were characterised by these participants as being a repetitive or indeed continuous act, arguably at odds with the intended purpose of such strategies. Of note, one participant who did not provide a lifetime frequency estimate for engaging in sensation proxies which they considered to be self-harm, indicated "snapping myself with a rubber band continuously." [ID 799].

Table 25. "Other" self-harm reported in Study 5a (percentage of those who completed the open-ended "other" self-harm question, *n* = 111). A further ten participants indicated "other" self-harm (and frequency in engagement) in the self-harm checklist, however, they did not indicate what their "other" self-harm behaviour(s) were.

"Other" self-harm methods (ever used)	Percentage	Frequency (*n*)
Food restriction	21.6	(24)
Purging and binge/purge behaviours	20.7	(23)
Snapping elastic bands against the skin	16.2	(18)
Peeling or picking at skin/ ripping nails until they bleed	11.7	(13)
Digging nails into the skin	8.1	(9)
Overdosing	7.2	(8)
Ligating/ self-strangulation	6.3	(7)
Self-stabbing	2.7	(3)
Bruising	3.6	(4)
Hitting hard surfaces	1.8	(2)
Alcohol	1.8	(2)
Provoking others or allowing oneself to be injured by others (including animals)	1.8	(2)
Taking painfully hot baths or showers	1.8	(2)
Breaking bones	1.8	(2)
Salt and ice burns	1.8	(2)

Illicit drug use	1.8	(2)
Holding of breath (until losing consciousness)	1.8	(2)
Cigarette or match burns	0.9	(1)
Smoking	0.9	(1)
Sleep deprivation	0.9	(1)
Walking bare-foot across rough ground	0.8	(1)
Taking ice baths	0.9	(1)
Exercising until losing consciousness	0.9	(1)
Bending fingers back	0.9	(1)
Self-scalding	0.9	(1)
Damaging eyes (by staring at a light source)	0.9	(1)
Diabulimia	0.9	(1)
Eating disorder (not specified)	0.9	(1)
Purposely cutting hair (“to disfigure”)	0.9	(1)
Pulling away from one’s family	0.9	(1)
Biting one’s tongue and cheeks	0.9	(1)
Self-drowning (attempted)	0.9	(1)
Denying self of adequate warmth (e.g., sufficient clothing)	0.9	(1)
Inhaling dangerous chemicals	0.9	(1)
Dangerous sexual behaviours	0.9	(1)

Note. Participants indicated all “other” self-harm behaviours which they had ever engaged in – therefore, many participants are indicated in more than one

group. Multi-faceted behaviour may be indicated in more than one category – for example, “snapping elastic bands/hairbands on my wrist til it leaves a bruise.” [ID 854] is indicated in both snapping elastic bands and bruising. Individuals who reporting “chocking” themselves (*n* = 5) were included within ligation/ self-strangulation category.

6.2.2.2 There is no safe overdose; interpretation of ‘dangerous substances’

It is pertinent to note that eight participants reported overdoses within the ISAS “other” category, indicating that they consider this behaviour to be self-harm but do not consider this to fit with the description of “swallowing dangerous substances” (three of the eight participants reported “swallowing dangerous substances” in the inventory checklist and also reported overdosing as an “other” form of self-harm). Given the safety ramifications of this (and wide agreement that self-poisoning cannot be carried out safely), the content of these individual responses were examined again (by EN). This closer examination suggests a lack of clarity regarding the dangerousness of substances, particularly medications which are readily available (e.g., over the counter medications; medications commonly stored within the home) or obtained via prescription. For example, one respondent wrote *“intentional prescription overdose”* as “other” self-harm but did not report this behaviour as “swallowing dangerous substances” in the ISAS. Another respondent specifically noted this confusion, stating *“Not sure if fits with "dangerous substances", but intentional overdoses of over-the-counter medicines.”*

6.2.2.3 Harm minimisation viewed as a form of coping

Harm minimisation was infrequently referred to in participants' discussions of their coping responses to a recent stressful or distressing situation; only seven participants (0.9% of the study sample) reported harm minimisation, as understood for the purposes of this study (sensation or process proxies for self-harm). Of these, the majority (*n* = 6) reported the sensation proxy of snapping an elastic band against the skin. One participant reported using a process proxy (marking areas of the body which would have been cut with a red marker pen). Of the seven participants who reported harm minimisations strategies in their coping responses, only four (0.5% of the study sample) did not consider this to be a form of self-harm.

6.3 Study 5b: Interview study

6.3.1 Method

6.3.1.1 Participants

Young people aged 11-21 years who had self-harmed in the past 6 months were recruited in the East Midlands (UK) from Child and Adolescent Mental Health Services (CAMHS), Children's Social Care Services, and in the community. Forty-five young people completed interviews, with the primary aim of comparing experiences of self-harm in young people looked-after in residential or foster care (*n* = 24) with young people with no experience of being in care (*n* = 21). Primary analyses of these data using Interpretative Phenomenological Analysis (IPA) are reported elsewhere (Wadman, Armstrong, et al., 2018; Wadman et al., 2017; Wadman, Vostanis, et al., 2018).

The present analysis focuses on those participants who reported some experience of harm minimisation strategies as a proxy for self-harm during their interview (n = 29) (see Section 6.3.2 for further details).

Informed consent was obtained from participants, parents/carers, and social workers, as appropriate. Ethical approval was given by the Social Care Research Ethics Committee (NHS Health Research Authority) and the departmental Research Ethics Committee.

6.3.1.2 Interviews

Participants took part in semi-structured interviews about their experience of repeated self-harm, stopping self-harm, and services and supports available. Participants were individually interviewed in 2014 at their home, university, or a local volunteer centre. Participants were interviewed by RW, who had extensive experience interviewing young people.

The interview schedule was devised with input from an advisory group of young people with experience of self-harm. Towards the end of the interview, the participants were asked a series of questions around stopping self-harm and self-harm recovery. Example questions are: “What might stop you from hurting yourself?”; “Can anything stop you once the idea has taken hold?” (see Appendix B for interview schedule). Often, harm minimisation strategies were discussed in response to these questions. Importantly for the present study aim, participants were specifically asked about their experience of using harm minimisation strategies if they did not discuss this unprompted. The example of snapping a rubber band on the wrist was given only *if* clarification was needed (and was given in 18 cases; 40%). The interviews

were 17 to 82 minutes in length (*M* = 34 minutes) and were audio recorded and transcribed.

Participants were aged between 13 and 21 years (*M* = 16.98, *SD* = 1.90) and six were male. The majority of participants (78%) were White British. Methods used to self-harm were reported (checklist adapted from Gratz, 2001; Table 24). Participants were asked an open-ended question about self-harm frequency and most (80%) reported periods of fluctuating frequency over years (e.g. self-harming daily at worst and then stopping for a number of months).

6.3.2 Analysis

Thematic analysis was used to identify inductive themes related to the experience of using harm minimisation strategies (Braun & Clarke, 2006). This was undertaken by LOR, who had research experience in qualitative methods and with young people who self-harm. LOR had not been involved in the interview data collection.

The first step of the analysis was to highlight those sections of the interview transcripts that related to harm minimisation. The content of these extracts was reviewed in order to determine if they related to perceptions of the harm minimisation strategies of interest in this study (as sensation or process proxies). Interview transcripts from 29 participants contained codable extracts relating to harm minimisation as a self-harm proxy, and in total there were 37 codable extracts (as some participants discussed such strategies at more than one point in their interview). Eight participants talked about harm minimisation in terms of distractions only (e.g., going for a walk; listening to music) rather than as a (sensation or process) proxy for self-harm, and so these responses

were not coded and were not included in the analysis. Six participants did not say anything about harm minimisation (as understood for the purposes of this study – sensation or process proxies for self-harm) and two participants explicitly stated they had never used them. Again, these responses were not coded and not included in the analysis. Thus, the majority of participants (29/45, 64.4%) had experienced using harm minimisation as a proxy for self-harm. The analysis focuses on these 29 participants.

A thematic analysis was completed by LOR on the identified interview extracts, following the phases of thematic analysis set out by Braun and Clarke (2006): (i) familiarisation with the data (reading and re-reading the data, noting down initial ideas); (ii) generating initial codes and collating data relevant to each code; (iii) collating codes into themes and gathering all data relevant to each potential theme; (iv) reviewing the themes and checking if they map onto the original coded extracts; (v) generating clear descriptions and names for each theme. The themes were derived from the data (rather than being identified in advance).

To establish the reliability of this initial analysis, the coded extracts (a total of 37 extracts from 29 participants) were presented, unlabelled, together with the theme descriptions to KB (who was blind to the original coding and analysis) and the percentage agreement between the two coders was calculated. The extent to which KB's matching of extracts to themes agreed with LOR's initial analysis was borderline acceptable (< 70%). These discrepancies were discussed by RW and EN, with further development and structuring of the themes, and their descriptions, to resolve disagreements. The reliability of the revised set of themes was then checked, as before, by AJW. There was a good

level of agreement between raters (AJW matched 31 of the 37 extracts to the same theme as the original coder LOR: 31/37; 83.8%).

6.3.3 Results

Three themes relating to perceptions and experiences of harm minimisation used as a proxy for self-harm are described. Table 26 gives additional quotes exemplifying these themes.

6.3.3.1 Harm minimisation strategies (as a proxy for self-harm) are perceived to be ineffective

"*They give you leaflets about 105 ways to stop harming and things, but it's like I've tried the laggy [rubber] band, I've tried drawing on myself, I've tried the ice. And it's like, <u>these things don't work</u>*" [ID 21].

Many of the young people interviewed described harm minimisation strategies as ineffective: *"I've tried to do it so many times, it doesn't work"* [ID 29], "*she said you can either hold an ice cube in your hand for as long as you can, or rubber band, or get a red pen and draw on you instead, but it doesn't work"* [ID 30]. Additional illustrative quotes are given in Table 26. In some cases, these strategies did not prove to be an effective alternative for either the physical sensation or process of self-harm: "*... sometimes, as much art and pinging elastic bands you can do, there's nothing quite like the feeling you get from self-harming"* [ID 28].

"*I think the one where you draw on yourself with red pen, I think that's completely ridiculous… they were saying some people who self-harm do it*

because they like to see the blood… but also they need the pain as well, so that one was quite pointless" [ID 21].

Some young people explained that the harm minimisation strategies did not address the underlying issues associated with their self-harm and thus did little to help them stop:

"And they [Child and Adolescent Mental Health Services] were really useful about it, like tried to give me different ways, so like elastic bands and ice cubes and things like that. But I don't think it ever dealt with the core problem which is why I'm still doing it [self-harm]" [ID 01].

Furthermore, some young people expressed a reluctance to use harm minimisation strategies: *"I thought it [harm minimisation] was all just a waste of time, even now I just feel like it's a lie because I don't want to do this, I'd rather just cut myself"* [ID 45]. One reason for not wanting to use harm minimisation was that it would lead them to self-harm more severely eventually (*"Because you put it [self-harm] back and you're like "I'm going to do it harder and harder" and then it's just like, it gives you that tingly feeling to go to the extra level"* [ID 43]). Another participant explained that they did not think before acting to self-harm and so *"probably wouldn't have even thought about putting a suggestion to use until after it [self-harm] happened"* [ID 08].

Thus, harm minimisation strategies as a proxy for self-harm were not perceived to be effective by a considerable proportion of young people interviewed.

6.3.3.2 Harm minimisation strategies are helpful (to some limited extent)

"Whenever I feel the need to self-harm or something, I twist it [elastic band] around my arm to get, to get the pain to get it out and not physically harm me" [ID 42]

As shown in Table 4, a number of young people reported harm minimisation strategies to be helpful. However, only two participants spoke about harm minimisation (specifically band snapping) in solely positive terms [ID 12; ID 42]. More commonly, the extent to which young people reported such strategies to be helpful was limited, for example, harm minimisation strategies were described as only working in the short-term or delaying self-harm for a short period of time: *"I've tried that and it did work for a little bit, but then I lost my elastic bands and I couldn't find any more"* [ID 16]; *"…the elastic band thing did work for a while but it came to a point that I was getting too miserable, that I actually broke the band because I'd been doing it too much, just went for the scissors instead"* [ID 37].

Interestingly, some participants also reported using harm minimisation strategies effectively in situations where they could not easily self-harm in other ways, for example, at school:

"Sometimes I used to use elastic band. If I was in a lesson and if I was feeling… like I really, really wanted to cut and I'd have to go to school, and I'd be in a lesson and I would use a loom band" [ID 38].

6.3.3.3 Harm minimisation strategies as self-harm

"I tried the one with the pen… where you draw red lines on you, but that turned into self-harm… I started digging it in" [ID 13].

A small but notable proportion of young people reported using harm minimisation strategies in order to actually self-injure, for example, using elastic bands or red pens to break the skin (see Table 26). The use of harm minimisation strategies in this way was viewed as being at odds with the intended aims of such strategies: *"[when] I had an elastic band I'd keep pinging it and pinging it and pinging it until like it'd finally break my skin, so it kind of defeated the object anyway"* [ID 26]. This inevitably led young people to question the utility of the harm minimisation strategies recommended to them: *"People say it's like a coping mechanism to, like, snap an elastic band on your wrist. I do it until it like makes my hands swell up. So I don't think that's really a coping mechanism"* [ID 05].

Table 26. Additional quotes exemplifying themes identified in Study 5b.

Themes	Quote [participant ID]
1. Harm minimisation strategies (as a proxy for self-harm) are perceived to be ineffective.	*"… they're useless"* [ID 05]
	"I think it didn't work" [ID 14]
	"I haven't given distraction techniques much of a chance. I mean I've tried a few and I've tried the elastic band thing but that for me; it hasn't worked" [ID 17]
	"… well, I didn't carry it [harm minimisation] on, so…" [ID 27]
	"People were like 'here's a red pen, here's some elastic bands', and I just couldn't do that" [ID 28]
	"Crunching ice is a rubbish one. I've tried to do it so many times, it doesn't work" [ID 29]
	"Doesn't work… using red pens or ice, no it's not the same, it does not work. I have tried it; it does not work" [ID 34]
	"Personally, the red pen doesn't work, it just encourages me to draw on my hand" [ID 37]
	"Done all that… none of those work… I don't know why they just didn't work for me" [ID 39]
	"It just wouldn't work" [ID 41]

	"Because you put it [self-harm] back and you're like "I'm going to do it harder and harder" and then it's just like, it gives you that tingly feeling to go to the extra level" [ID 43]
2. Harm minimisation strategies are helpful (to some limited extent)	*"I have got like loombands and I flick them against my wrist… that really helps"* [ID 12] *"I've had an elastic band on my wrist before… [it] hurt but it was, helped a bit, but that's really it"* [ID 20] *"The elastic band, did [work] for a few months when I was younger. Then that sort of wore off, so then like, I've got a little scar there where I kept a really tight bobble on me for two weeks. Thinking "oh that might help" but it didn't"* [ID 21] *"But you know the elastic band it did help whilst I was out and I still do use it if I feel rubbish… so I will have like a hair bobble, like even this my loom band, I keep it on me cause obviously nobody's going to think twice about having a loom band on cause everybody's wearing them but if I'm feeling rubbish, I just, I'll just twing it and although it doesn't hurt that much it's almost like the actions of doing it"* [ID 22] *"It was alright, I mean the ice cube one was [pause] alright, it doesn't really compare, it's not quite the same [as self-harm] they're alright; they're good for what they are"* [ID 32]

3. Harm minimisation strategies as self-harm	*"I end up making them a method of self-harm"* [ID 05] *"… tried red biro but eventually you just pierce the skin anyway"* [ID 20] *"And then the ice, I turned it into salt and ice; so that's kind of harming yourself, you know when you put the salt on you and then it melts into your skin. That didn't work"* [ID 21] *"I do use rubber bands sometimes but then I found, they started to mark, well I was doing it and they made my arm bleed and bruise"* [ID 29]

Note. Participants could be mapped to more than one theme. Codable extracts were available for 29 participants. Eight did not report using harm minimisation strategies (as understood for the purposes of this study – sensation or process proxies for self-harm) and eight reported distraction techniques only (rather than harm minimisation strategies as a proxy for self-harm).

6.4 Discussion

This secondary analysis of quantitative survey and qualitative interview data brings together evidence relating to young peoples' perceptions of harm minimisation strategies for self-harm, specifically sensation and process proxies. Secondary analysis of the quantitative survey data benefits from a large sample focusing on open-ended reports of behaviours regarded as "other" self-harm. Analysis of these responses suggests that: (i) a small but notable proportion of the young people reported 'snapping elastic bands on the wrist' (harm minimisation as a sensation proxy) as a form of self-harm (indeed this was the second most commonly reported "other" form of self-harm, after eating-related behaviours), and (ii) overdoses, particularly of over-the-counter and prescription medicines, are not always regarded by young people as being dangerous. Analysis of the description of coping responses employed by young people in response to a stressful or distressing situation indicates that harm minimisation strategies (sensation and process proxies) are very infrequently referred to as a behavioural coping response to help young people deal with difficult situation; only four participants (0.5% of the study sample) reported that they used a harm minimisation strategy (sensation proxy, $n = 3$; process proxy, $n = 1$), but did not consider this to be a form of self-harm.

Prominent themes that emerged from the qualitative interview data indicate that: (i) harm minimisation strategies were viewed as ineffective, with some young people expressing reluctance to use such methods as well as concerns that they do not address underlying issues related to self-harm; (ii) although some young people report harm minimisation to be helpful, this utility

is limited to a short timeframe or to situations where other methods of self-harm cannot be used; and (iii) a small number of young people use harm minimisation strategies to self-harm, for example, to break the skin (which may explain why some young people reported harm minimisation to be a form of self-harm in the quantitative survey). The young people's experiences with harm minimisation need to be considered in the context of these strategies being widely recommended by clinical services and how this could be perceived by young people (e.g., being repeatedly asked to try strategies that "do not work").

To date, very little research has explored how individuals who self-harm, or healthcare professionals, view harm minimisation strategies. A structured interview study found relatively few young people (< 9%) reported using sensation or process proxies to resist the urge to self-harm (instead turning to others and receiving emotional support were generally reported to be helpful) (Klonsky & Glenn, 2008). Research exploring healthcare professionals' views indicates that formulating plans around harm minimisation strategies is seen as promoting empowerment, ensuring that the young person is an active participant in their own recovery (Tofthagen et al., 2014). However, it is also recognised that harm minimisation strategies may be advantageous for some, but not all patients (Pembroke, 2006; Pengelly et al., 2008). Indeed, a recent qualitative study suggests that some mental health practitioners regard the use of harm minimising strategies for self-harm as potentially useful (at least in inpatient settings) but others voiced concerns about their use, in terms of increased risk and escalating self-harm (James et al., 2017). It is pertinent to note that: (i) this study considered harm-reduction

and damage limitation strategies, as opposed to the sensation or process proxies for self-harm considered within the current study, and (ii) the majority of staff who took part in the research had no direct experience of using harm minimisation approaches with service users.

What is clear from our findings is that harm minimisation strategies (as sensation or process proxies) alone are perceived as neither effective nor sufficient in helping a young person to cope with their self-harm. This potentially questions how appropriate it is to characterise these harm minimisation strategies as 'harm minimising'. Drawing together the quantitative and qualitative findings, there is evidence that some young people use harm minimisation strategies as a form of self-harm. How young people *perceive* these strategies is also important in relation to their willingness to engage with support services; being repeatedly advised to try strategies that do not seem to work can undermine a young person's confidence in support/services, which may in turn impact upon future help-seeking. Given the dearth of research on this topic, there is a pressing need for further work to determine if harm minimisation can be an effective approach, for whom, and how best to do this.

As there is no safe overdose (National Collaborating Centre for Mental Health, 2011), it was concerning to see a lack of understanding and apparent incongruence between participants' perceptions of dangerousness and the potential toxicity/lethality of overdoses with medication. When harm minimisation strategies are recommended to young people, they must be accompanied by clear guidance on utility and safety which emphasises that there is no such thing as a safe overdose. If this message fails to reach even a

handful of at-risk young people (as was apparent in this study) the consequences could be extremely serious. Future qualitative research would allow more in-depth examination of young peoples' perceptions of medicine overdoses and levels of danger.

6.4.1 Limitations

We present findings from secondary analyses of data that were not collected to specifically examine harm minimisation. Secondary analysis of qualitative data on self-harm can provide valuable insights into the clinical needs and experiences of young people who self-harm (Owens et al., 2016). One limitation of the current study is that we did not collect data regarding *how* harm minimisation strategies were discussed with young people (e.g., what claims of effectiveness versus harm were made) and what other (if any) supports were offered in tandem. Clinicians have stressed that harm minimisation strategies should not be used simply as a standalone self-help strategy but as a monitored part of an ongoing collaborative care plan (Pengelly et al., 2008). However, the extent to which this is reflected in clinical practice is an important question which remains unaddressed. Harm minimisation may also have been encountered outside of clinical services; the use of harm minimisation strategies for self-harm is advocated for in readily available sources of information regarding self-harm management and recovery in the public sphere (e.g. websites; self-help sheets; support groups). We do not know what percentage of our sample are 'hidden', in that they have not presented to medical or mental health services for self-harm, and it is unclear whether these dynamics affect views on harm minimisation strategies. Future research may

also seek to elucidate whether characteristics such as an individual's gender, age and self-harm history (e.g., frequency; duration; methods) affects views on harm minimisation. It is not known what proportion of the sample were Psychology undergraduates. It is also not known what, if any, impact this may have had on participants' views.

The secondary analysis of the survey data focused on open-ended responses requested when the "other" response category was selected in relation to self-harm. For this reason, the relative number of responses relevant to harm minimisation was (arguably) low, but it is important to emphasise that these responses relating to harm minimisation were also totally unsolicited. This suggests that the use of harm minimisation strategies as a form of self-harm is an important issue for some young people who self-harm. Given the dearth of evidence on harm minimisation for self-harm, this secondary analysis provides converging evidence on the limitations of some strategies and a compelling argument for more targeted research. It also addresses the call for studies exploring patients' experiences of harm minimisation (National Collaborating Centre for Mental Health, 2011).

Both samples reported relatively frequent repetition of self-harm, which could have implications for the suitability of the use of harm minimisation strategies. However, it should be noted that NICE guidance currently recommends such strategies for repeated self-harm (regardless of frequency, duration, or method of self-harm) in the absence of evidence regarding effectiveness (National Collaborating Centre for Mental Health, 2011).

6.4.2 Implications

Those with lived experience of self-harm assert that engaging with and exploring distress is paramount to recovery, and failing to do so prevents the development of alternative coping (Shaw & Shaw, 2007). Providing someone with information about reducing physical harm through sensation or process proxies, in the absence of additional therapeutic input, is inadequate as it neither addresses the underlying meanings of self-harm nor acknowledges the distress experienced. While harm minimisation strategies as an adjunct to ongoing support might be useful to some individuals, and might afford an individual the choice to reduce medical harms, over-reliance on harm minimisation strategies may direct focus away from core psychological factors and send a dismissive and potentially harmful message to young people accessing services for self-harm (Townsend, 2014).

6.5 Conclusions

In conclusion, we would assert that: (i) harm minimisation strategies should not be offered in (therapeutic) isolation, (ii) if suggested, then the use of such strategies must be monitored, and (iii) for some individuals, these strategies will certainly not be helpful and could even be harmful. Harm minimisation for self-harm is, undeniably, a thorny issue. Indeed, there are wider debates about promoting ‘safe’ or acceptable self-harm and the self-management of self-harm that are beyond the scope of our data. Nonetheless, harm minimisation strategies for self-harm are widely available and endorsed by clinical services, often as a ‘common sense’ approach. In the absence of any compelling research evidence, the findings of our study raise serious concerns about their

current use in clinical practice. Harm minimisation strategies for self-harm must be presented within a wider support context and should be monitored. Balanced and appropriate guidance regarding their efficacy must be given along with the strongest caveat that there is no way to safely self-poison.

6.6 Summary

Although UK clinical guidelines make tentative recommendations for 'harm minimisation' strategies for repeated self-harm, this is in the absence of empirical evidence supporting their acceptability or effectiveness. This chapter (Chapter 6) examined young people's views of harm minimisation strategies (e.g., snapping elastic bands on skin; drawing on skin with red ink), as a proxy for self-harm. This mixed methods study examined data (secondary analysis) from: (i) an online questionnaire (N = 758; ages 16-25 years, community-based) observing the frequency of these strategies being used as a form of self-harm, and as a form of alternative coping (viewed as distinct from self-harming), and (ii) semi-structured interviews (N = 45; ages 11-21 years, recruited from Child and Adolescent Mental Health Services (CAMHS), Children's Social Care Services, and in the community), using thematic analysis to identify themes related to harm minimisation. Predominant themes suggest that many young people viewed harm minimisation strategies as a proxy for self-harm as ineffective. Where such strategies were reported as helpful, their utility was seen to be short-lived or situation-specific. Findings from both studies indicate that some young people described using harm minimisation (e.g., elastic band snapping) as a form of self-harm (e.g., to break the skin). Harm minimisation strategies should not be recommended in isolation and their use must be monitored. Further research is urgently needed to develop an evidence base that informs practice.

Chapter 7. GENERAL DISCUSSION

This chapter provides a synthesis of results across the five studies presented within this thesis and considers these findings within the context of existing empirical evidence. Strengths, limitations and considerations for the interpretation of the findings are outlined, as well as theoretical and clinical implications. The overarching aim of the work contained within this thesis was to explore whether experiential avoidance and functional coping dynamics can help us to further understand change in self-harm thoughts, experiences (e.g., urges; difficulty to resist) and behaviour. The findings are summarised and interpreted within the context of the four specified research aims outlined in the introduction (see Section 1.12):

1) To investigate whether experiential avoidance and functional coping dynamics can: (i) differentiate those with and without a lifetime history of self-harm, and (ii) predict the recency and frequency of self-harm (Chapter 2).

2) To investigate the relative importance of experiential avoidance and functional coping dynamics in self-harm of differing suicidal intent (Chapter 4).

3) To investigate whether exploring functional coping dynamics can help us to understand *when* someone might: (i) think about harming, and (ii) self-harm (Chapter 3; Chapter 5).

4) To investigate whether harm minimisation (sensation and process proxies) is viewed by young people, with a history of self-harm, as

being effective in stopping the transition from thinking about self-harming to acting upon those thoughts (Chapter 6).

7.1 Summary of findings and the unique contribution of this thesis to the literature

Table 27. Summary of the novel contributions made by each empirical chapter.

Chapter	Study	Novel contribution
2	1: quantitative, cross-sectional; between-participants	• While both structural and functional accounts are paramount to building a comprehensive understanding of coping, there is a lack of research addressing functional coping dynamics in relation to self-harm. • This study is the first to explore transactional, self-defined, functional coping in relation to both lifetime self-harm and self-harm recency and frequency. • While the Experiential Avoidance Model (EAM: Chapman et al., 2006) is specified for non-suicidal self-injury, this study considered self-harm regardless of intent.
3	2: quantitative, cross-sectional; between-participants	• Typically, research into ideation and enactment has categorised participants based on lifetime histories of self-harm thoughts and behaviours. • Ideation is readily acknowledged by clinicians as having a central role in the treatment and management of self-harm, so it is important to have targeted research to understand ideation in those with a history of self-harm as well as those who have *only ever* thought of harming. • To date, no research has explored self-defined, functional coping dynamics within an ideation-to-action framework.
4	3: quantitative, cross-sectional; between-participants	• The EAM posits that experiential avoidance is a key psychological variable in understanding non-suicidal self-injury. However, notions of escape are central in conceptualisations of suicidal behaviours. • This study is the first to explore the relative importance of experiential avoidance in those with a history of non-suicidal self-injury compared to those with a history of non-suicidal self-injury and suicidal behaviour (and controls with no history of self-injury).
5	4: quantitative, micro-longitudinal daily diary study embedded within a longitudinal research protocol; within-participants	• While micro-longitudinal research has brought important advances in understanding between and within-person processes over short periods, no research has explored functional coping dynamics using a repeated daily diary design. • This study is the first to explore whether functional coping dynamics moderate the relationship between stress level and self-harm experience (e.g., thoughts, urges, self-harm) (within-person), measured within the context of participants' daily lives.
6	5: mixed methods; between-participants	• Very little previous research has explored how individuals who self-harm view harm minimisation strategies; an intervention designed to prevent the transition from ideation to enactment or the replace self-harm with a safer alternate behaviour. • This study identified typologies of harm minimisation and explored young people's views on harm minimisation.

7.1.1 Can experiential avoidance and functional coping dynamics: (i) differentiate those with and without a lifetime history of self, and (ii) predict the recency and frequency of self-harm (Chapter 2)?

In univariate analyses, higher levels of experiential avoidance and avoidance coping predicted lifetime self-harm (versus no self-harm); lower levels of approach, reappraisal and emotion regulation coping predicted lifetime self-harm. In multivariate analysis, adjusted for age and momentary affect, experiential avoidance remained significantly predictive of self-harm history. All coping functions were non-significant. In univariate analyses, higher experiential avoidance and avoidance coping were related to increased risk of recent self-harm engagement. Approach, reappraisal, and emotion regulation coping were related to an increased period of time since the last episode of self-harm. In multivariate analysis, adjusting for age and affect, higher reappraisal coping remained significantly predictive of an increased period since last episode self-harm. All other coping functions, and experiential avoidance, were non-significant. In univariate analyses, experiential avoidance and avoidance coping were positively associated with lifetime self-harm frequency. Approach and reappraisal coping were negatively associated with lifetime frequency of self-harm. There was no significant relationship between emotion regulation coping and self-harm. In multivariate analysis, adjusted for age and affect, only approach coping remained significantly predictive of lifetime self-harm frequency. Taken together, results indicate that reappraisal and approach coping functions may be important protective factors in self-harm.

7.1.2 What is the relative importance of experiential avoidance and functional coping dynamics in self-harm of differing suicidal intent (Chapter 4)?

All coping functions showed significant ordered effects: those in the control group were higher in approach, emotion regulation, and reappraisal coping than those in the non-suicidal self-injury only group, who, in turn, were higher than those with a history of both non-suicidal and suicidal behaviour in these domains (Control > NSSI > NSSI + SB). An inversed ordered effect was observed in avoidance coping (Control < NSSI < NSSI + SB). Overall, there was no observed ordered effect in experiential avoidance. However, there was an ordered effect in the repression/ denial facet (Control < NSSI < NSSI + SB). This indicates that those with a history of both non-suicidal self-injury and suicidal behaviour report higher levels of distancing and dissociating from distress when compared to those with a history of non-suicidal self-injury only and, in turn, those with no self-injury history. When only those with a history of five or more episodes of NSSI were included in the NSSI group, in line with the proposed criteria for NSSID (American Psychiatric Association, 2013), significant ordered effects were also observed in the behavioural avoidance (Control < NSSI < NSSI + SB) and distress endurance (Control > NSSI > NSSI + SB) facets.

7.1.3 Can exploring functional coping dynamics help us to understand *when* someone might: (i) think about harming, and (ii) self-harm (Chapter 3; Chapter 5)?

Study 2 (Chapter 3) explored whether functional coping dynamics can predict self-harm experience (no self-harm experience; ideation; enactment) in response to the most significant recent stressor, in people with a recent history of self-harm. That is to say, all participants had self-harmed within the timeframe defined as 'recent' (last 3 months), and the study sought to determine whether coping can predict whether that self-harm was in response to the biggest stressor they had faced during that period. In univariate analyses, those who reported self-harming in response to the major stressor were lower in approach and reappraisal coping than those who reported no self-harm experience. Those who self-harmed were higher than the no self-harm group in avoidance and emotion regulation coping. Those who reported thinking about self-harming (but who did not engage in an act of self-harm) were lower than the enactment group in avoidance and emotion regulation coping and lower than the no self-harm group in reappraisal coping. In multivariate analysis, adjusting for depressive and anxious symptomatology, approach, emotion regulation, and reappraisal coping differentiated the enactment and no self-harm groups; emotion regulation differentiated the ideation and enactment groups; reappraisal differentiated the ideation and no self-harm groups. Functional coping dynamics made a significant contribution to the variability explained by the multinomial regression beyond anxious and depressive symptomatology.

Study 4 (Chapter 5) sought to explore whether functional coping dynamics moderated the relationship between stress and self-harm experience (e.g., thoughts; urges; difficulty resisting; behaviours). Participants' responses were participant mean centered. This permits assessment of within-person effects; that is to say the effect of change relative to the person's own average. For example, when a participant experiences an increase in a given predictor – such as stress – relative to their own mean, does the probability of experiencing a self-harm thought or behaviour increase or decrease? Taken together, the results suggest that on days where the participant faced a higher stress event (for them), higher levels (for them) of approach, emotion regulation, and reappraisal coping may be protective in terms of self-harm behaviour, with coping in essence 'buffering' against the effects of stress. Approach coping may be particularly important on high stress days, given that the moderation effect reversed the direction of the effect of stress on self-harm behaviour. Considering broader self-harm experience (thought, "yes/"no"; thought intensity; urge intensity; time spent thinking; difficulty resisting and overall intensity), high levels of reappraisal coping and approach coping (except for thought "yes"/"no") appear to be protective, regardless of the stress level faced. There is some evidence for the protective nature of emotion regulation coping (urge intensity; overall intensity). Approach coping buffers the effect of high stress on self-harm experiences (thought intensity; urge intensity; time spent thinking; difficulty resisting and overall intensity) and emotion regulation buffers the effects of stress on intensity of experience (thought intensity; urge intensity; overall intensity).

7.1.4 Is harm minimisation (sensation and process proxies) viewed by young people, with a history of self-harm, as being an effective in stopping the transition from thinking about self-harming to acting upon those thoughts (Chapter 6)?

Taken together, results from Study 5 indicate that young people do not find harm minimisation (specifically sensation or process proxies) to be effective in stopping the transition from thinking about harming to acting upon those thoughts. Analysis of the quantitative data suggests that a small – but notable – proportion of the young people reported "snapping elastic bands on the wrist" (harm minimisation as a sensation proxy) as a form of self-harm. Harm minimisation strategies are very infrequently referred to, by young people, as a behavioural coping response to help them deal with difficult situation; only four participants (0.5% of the study sample) reported that they used a harm minimisation strategy (sensation proxy, $n = 3$; process proxy, $n = 1$), but did not consider this to be a form of self-harm.

Prominent themes that emerged from the qualitative interview data indicate that: (i) harm minimisation strategies were viewed as ineffective, with some young people unsurprisingly expressing reluctance to use such methods, as well as concerns that they do not address underlying issues related to self-harm, (ii) although some young people report harm minimisation to be helpful, this utility is limited to a short timeframe or to situations where other methods of self-harm cannot be used, and (iii) a small number of young people use harm minimisation strategies to self-harm, for example, to break the skin.

7.2 Theoretical implications

The Experiential Avoidance Model (Chapman et al., 2006) proposes that NSSI is principally a manifestation of *emotional* avoidance, although the behaviour may also serve to allow an individual to avoid alternate internal experience (e.g., thoughts; memories; somatic sensations). The EAM views NSSI as a coping strategy used to modulate unwanted or intolerable aversive mental states and posits that a stimulus that elicits an intense aversive emotion may be conducive to a shift towards avoidance repertoires, such as non-suicidal self-injury. Engaging in NSSI leads to short-term symptom relief. This resultant reduction in distress serves to maintain and strengthen the reliance on self-destructive behaviours; the avoidant behaviour is reinforced via temporary relief from, or elimination of, the internal state and forms a self-perpetuating cycle. Thus, the avoidant behaviour becomes an automatic escape response.

The model delineates moderating factors (i.e., high emotion intensity; difficulty regulating when aroused; poor distress tolerance; emotion regulation skills deficits) and maintenance factors (i.e., the paradoxical effect of experiential avoidance; failure to extinguish the aversive response; the reliance of rule-governed behaviour; habituation to negative consequences). While the EAM outlines specific predictions about NSSI, the conceptual account focuses exclusively on *non-suicidal* self-injury: "self-injurious behavior that occurs in the absence of any intent to die" (Chapman et al., 2006) (p. 372).

7.2.1 Lifetime self-harm

In line with the EAM, it was hypothesised that those with a lifetime history of self-harm would report higher levels of experiential avoidance and higher

levels of coping perceived as avoidant and emotion regulatory in function, than those who have never self-harmed. Results from Study 1 (Chapter 2) partially support these hypotheses; in univariate analyses those who had a lifetime history of self-harm were higher in avoidance coping and experiential avoidance than those with no lifetime history. However, those with no lifetime history of self-harm were higher than those with such a history in levels of emotion regulation coping. In multivariate analysis, experiential avoidance remains predictive of self-harm history (versus no history). This is in line with previous research that has shown that those with current self-injury (past year NSSI) demonstrate significantly higher levels of experiential avoidance than those with no lifetime history of NSSI (Anderson & Crowther, 2012) and that adolescents with and without NSSI histories can be differentiated in terms of unwanted inner experiences, thought suppression, and alexithymia (the latter two, and avoidance/cognitive fusion, were assessed as three forms of experiential avoidance) (Howe-Martin et al., 2012).

Results from Study 3 (Chapter 4) could be seen as partially supporting the hypothesis. However, here it is important to note that the analyses were designed to detect ordered effects (i.e., Control < NSSI < NSSI + SB; Control > NSSI > NSSI + SB), rather than specifically whether there was a difference between those with – versus those without – a lifetime history of self-harm. While there is no significant ordered effect for overall experiential avoidance, or the behavioural avoidance, distress aversion, procrastination, distraction/suppression, or distress endurance facets of experiential avoidance (as measured by the MEAQ), there was a significant ordered affect in repression/denial, such that the control group with no self-injury history were

lower than the NSSI only group who, in turn, were lower than the NSSI + SB group (Control < NSSI < NSSI + SB). When only those with five or more episodes of NSSI were included in the NSSI group, in line with the proposed criteria for NSSID (American Psychiatric Association, 2013), there was also significant ordered effects in behavioural avoidance (Control < NSSI < NSSI + SB) and distress endurance (Control > NSSI > NSSI + SB).

7.2.2 Predictions regarding the recency and frequency of self-harm

In Study 1 (Chapter 2) it was hypothesised that increased endorsement of experiential avoidance and higher levels of both avoidant and emotional regulatory coping would predict self-harm recency. Results support the hypothesis that higher experiential avoidance and avoidance coping were associated with more recent self-harm. However, contrary to the hypothesis, higher levels of emotion regulation coping were associated with less recent self-harm. In multivariate analysis, only reappraisal coping was significantly associated with recent self-harm. While Anderson and Crowther (2012) report that undergraduates with past-year NSSI were significantly higher in experiential avoidance than those with no lifetime NSSI, the past year self-injury group were not significantly different in levels of EA from those who had previously self-injured but had not done so in the last year.

Given that the EAM (Chapman et al., 2006) is a behavioural model, frequency, as well as recency of engagement, was hypothesised as being a key characteristic when considering the relationship between self-harm, experiential avoidance and coping function. The model posits that with successive reductions in negative affect, associations are strengthened such that

self-harm becomes an automatic escape response. Thus, individuals become progressively reliant on emotionally avoidant repertoires. Those with higher lifetime frequency of behaviour engagement will have been exposed to a greater number of experiences, or 'trials', thus it was proposed that the association would be stronger. Therefore, it was hypothesised that higher frequency self-harm would be associated with increased endorsement of experiential avoidance and higher levels of both avoidant and emotional regulatory coping.

Results partially supported the hypotheses; higher levels of experiential avoidance and avoidance coping were associated with higher frequency lifetime self-harm. However, contrary to expectations, there was no relationship between emotion regulation and self-harm frequency. In multivariate analysis neither experiential avoidance, avoidance or emotion regulation coping were predictive of self-harm frequency. Previous research has shown inconsistent results regarding the relationship between experiential avoidance and self-harm frequency: (i) the frequency of NSSI engagement, in male undergraduates, was associated with higher levels of emotional non-acceptance (Gratz & Roemer, 2004), (ii) avoidance[32] was associated with NSSI frequency, in female undergraduates, with two indirect effects between emotional distress and NSSI – one via limited access to emotion regulation strategies and avoidance, and a second via avoidance only (Anderson et al., 2018); however (iii) bivariate correlations indicated that NSSI frequency was

[32] Here, the latent variable 'avoidance' was a composite of thought suppression (as measured by White Bear Suppression Inventory, WBSI) – which was conceptualised as cognitive avoidance – and experiential avoidance (as measured by AAQ) – which was conceptualisation as affective avoidance.

positively correlated with thought suppression (as measured by WBSI), but not experiential avoidance, as measured by the AAQ (Chapman et al., 2005).

7.2.3 The relationship between experiential avoidance and functional coping dynamics

Study 1 (Chapter 2) explored the relationships between experiential avoidance and coping. It was anticipated that experiential avoidance would be positively correlated with avoidance and emotion regulation coping functions. However, results indicated that while experiential avoidance (as measured by the AAQ-II) was positively correlated with avoidance coping, it was negatively correlated with emotion regulation coping. This association was small (-.081) and the potential for the impact of the measure utilised (the FDC) is outlined in Section 7.4.1.1.3.

7.2.4 Experiential avoidance and self-harm regardless of intent

The work presented within this thesis focuses on self-harm, regardless of intent. The findings from Study 1 (Chapter 2) suggest that experiential avoidance – as measured by the AAQ-II – may be an important psychological variable, regardless of suicidal intention (or lack thereof). Results of Study 3 (Chapter 4) paint a slightly more complex picture; while there was no significant ordered effect for overall experiential avoidance – as measured by the MEAQ – or the behavioural avoidance, distress aversion, procrastination, distraction/suppression, or distress endurance facets of experiential avoidance, there was a significant ordered affect in repression/denial. Here, the control group with no self-injury history were lower than the NSSI only group, who, in turn, where lower than the NSSI + SB group (Control < NSSI < NSSI + SB).

When only those with five or more episodes of NSSI were included in the NSSI group there were also significant ordered effects in behavioural avoidance (Control < NSSI < NSSI + SB) and distress endurance (Control > NSSI > NSSI + SB). As discussed above, it is important to consider that the analyses were designed to detect ordered effects (i.e., Control < NSSI < NSSI + SB; Control > NSSI > NSSI + SB), rather than specifically whether there was a difference between those with versus those without a lifetime history of self-harm. Furthermore, while the overall ordered effect for total experiential avoidance is not statistically significant, it is approaching significance (p = 0.058).

7.2.5 Conclusions

Taken together, findings of the doctoral work presented suggest that experiential avoidance might be an important psychological variable in self-harm, regardless of intention (or lack thereof). However, it is important to remain mindful that: (i) many of the effect sizes reported are small, and (ii) the EAM model is restricted in its focus. For example, the model does not account for background factors, which might impact upon vulnerability (e.g., trauma) or psychological variables (e.g., defeat; entrapment) that are well-evidenced and central to alternative theoretical accounts (e.g., The Integrated Motivational-Volitional Model of suicidal behaviour: O'Connor, 2011a, 2011b; O'Connor & Kirtley, 2018). Therefore, it may be prudent to consider experiential avoidance as one psychological aspect of a broader, more complex picture that is a multifaceted phenomenon.

7.3 Clinical implications

7.3.1 Paying attention to the build-up of seemingly innocuous stressors, the need for out-of-hours access to support, and the role of co-produced safety plans

The questionnaire study in Chapter 3 (Study 2) indicated that even with a recent history of self-harm, self-harming is not an inevitable outcome when an individual is exposed to a significant stressor; a significant minority (39.5%) of those with a recent history of self-harm experienced no self-harm thoughts and behaviours in response to the identified recent[33] major stressor. That is to say, their self-harm was a response to a 'less significant' stressor. This could be taken to highlight the unpredictable nature of self-harm thoughts and behaviours and the need for awareness that seemingly innocuous events may have a profound impact as a catalyst for self-harm ideation and a tipping point for enaction. Furthermore, it could suggest that, for many people, self-harm thoughts and behaviours may be a consequence of an endurance or accumulation of more minor day-to-day stressors, such that a seemingly less significant event serves as 'the straw that breaks the camel's back'.

This finding has practical implications; it may not be possible for an individual to anticipate more vulnerable periods, given that they may occur unpredictably in response to day-to-day stressors as well as more 'significant' events. Therefore, it is of paramount importance that individuals have ready access to sources of support and that both informal and formal support networks are able to identify and respond appropriately to signs of distress. The

[33] Here, 'recent' self-harm and 'recent' stressor was defined as past 3 months.

co-production and rehearsal of a safety plan may aid in this, given that this facilitated process empowers individuals to explore alternative coping strategies, plan possible coping routes in advance, and identify and utilise external sources of support in moments of difficulty/ crisis. The safety plan is a prioritised list of hierarchal steps, generated to use to mitigate risk of self-harm. Safety planning involves the identification of: (i) warning signs of a deterioration in mental health, of potential upcoming crisis, (ii) internal coping strategies, that is to say what the person can do for themselves to cope with the situation, (iii) social situations and people that can help to distract from the situation, (iv) people (e.g., family; friends) who can be contacted as a source of support, (v) professionals or agencies that can be contacted for assistance, and (vi) making the environment safe, for example by removing access to means (O'Connor et al., 2019; Stanley & Brown, 2012; Stanley et al., 2018).

A safety plan is something which anyone can be supported to produce regardless of whether they are in contact with formal sources of support. While arguably not optimal, safety plans can also be produced independently. Evidence suggests that those caring for people who are suicidal or at risk of self-harming have unmet needs including around practical support and advice (McLaughlin et al., 2016). Being involved in the co-creation of a safety plan – and having the 'back up' in place affording by advanced planning – may also help the ensure that supporters feel acknowledged, empowered, and included.

Optimal access to formal sources of support may include the provision of out-of-hours (i.e., 24 hour access) crisis services (The National Confidential Inquiry into Suicide and Safety in Mental Health, 2019). Ideally these should be accessible to all those who need them (e.g., not rely exclusively on verbal

communication). The finding may also have implications for the importance of distress tolerance work within clinical services for those who self-harm.

7.3.2 Supporting approach and reappraisal coping

Taken together, results of the work presented here support the value and potential protective role of approach and reappraisal coping, in particular. In univariate analyses, those with no lifetime history of self-harm are higher in approach and reappraisal coping than those with a lifetime history (Study 1, Chapter 2). For those who have self-harmed, in univariate analyses, higher approach coping and reappraisal coping predicted less recent self-harm. In multivariate analyses the association with reappraisal remained statistically significant (Study 1, Chapter 2). Higher approach and reappraisal coping were also associated with less frequent self-harm, in univariate analyses. The relationship between approach coping and frequency of self-harm remained statistically significant in multivariate analysis (Study 1, Chapter 2). In a sample with recent (past 3 months) history of self-harm, those with no self-harm experience in response to the significant stressor faced within the last 3 months were higher in approach coping than those who self-harmed. Those with no self-harm experience were also higher in reappraisal coping than those who thought about self-harming or who acted upon their thoughts to self-harm. These differences remain significant in univariate and multivariate analyses (Study 2, Chapter 3). Considering self-injury of differing intent, those who had never self-injured were higher than the NSSI only group, who, in turn, were higher than those with a history of NSSI and suicidal behaviour, in approach and reappraisal coping (Study 3, Chapter 4).

Chapters 2-4 consider between-group effects; results of the daily diary study (Study 4, Chapter 5) consider within-person effects. Here too, approach and reappraisal coping appear protective. Findings indicate that approach and reappraisal coping moderated the relationship between stress and self-harm. At low levels of coping *for that individual*, the relationship between stress and same-day self-harm behaviour was positive. At high levels of coping *for the individual*, the relationship was inversed (approach) or attenuated (reappraisal). Considering self-harm thought ("yes"/"no") higher reappraisal *for the individual* was associated with reduced likelihood of having thoughts of harming. Higher approach coping and higher reappraisal coping *for the individual* was associated with reduced intensity of self-harm thoughts, reduced intensity of self-harm urges, reduced time thinking about self-harm, reduced difficulty in resisting self-harming, and reduced intensity of overall self-harm experience. Approach coping also moderated the effects of stress on self-harm experience such that at low levels of approach coping *for that individual*, the relationship between stress and self-harm experience (thought intensity; urge intensity; time thinking about self-harm; difficulty resisting; overall self-harm experience intensity) were strengthened and at high levels of approach coping the relationship was not significant.

Many available psychological approaches to the management and treatment of psychological distress (e.g., ACT; Dialectical Behavior Therapy [DBT]; Cognitive Behavioural Therapy [CBT]; Mentalisation Based Therapy [MBT]) hold reappraisal and approach-type facets centrally. This includes approaches which have been shown to help prevent the repetition or frequency of self-harm (Hawton et al., 2016). As well as being supported within clinical

services, the development of more adaptive, protective coping can also be supported in other settings. Importantly, the promotion of coping skills is something that is likely to benefit all and could be delivered at a preventative, rather than intervention, stage; given the age of onset of self-harm thoughts and behaviours is typically in adolescence (e.g., Gillies et al., 2018), arguably focus in Personal, Social and Health Education (PSHE) on bolstering students' capacity for approach and reappraisal coping would support the wellbeing of all young people, including those who are at risk of self-harming, whether or not this risk is yet known (e.g., regardless of whether or not they have disclosed self-harm thoughts).

While in between-groups research, avoidance coping was related to adverse outcomes[34], there were no main effects or interaction effects of avoidance at the within-person level (Study 4). This suggests that while being *generally* higher in avoidance is related to negative outcomes, people are not higher in avoidance *for them* on days where they think about self-harming or self-harm.

An inconsistent pattern of findings was, however, observed for emotion regulation coping. In Study 1, those with no history of self-harm were higher in emotion regulation coping than those with a lifetime history of self-harm, in

[34] (i.e., those with a lifetime history of self-harm were higher than those without any self-harm history in avoidance coping [Study 1]; those with a lifetime history of NSSI + SB were higher than those with NSSI only, who, in turn, were higher than those with no self-injury history in avoidance coping [Study 3][34]; higher avoidance coping predicted more recent and more frequent self-harm, in univariate analyses [Study 1]; in those with a recent history of self-harm, those who self-harmed in response to the significant stressor described were higher in avoidance in response to that stressor than those in the ideation or no self-harm groups, in univariate analyses [Study 2]).

univariate analysis. Higher emotion regulation coping was also associated with less recent self-harm, in univariate analysis, but there was no relationship between emotion regulation coping and self-harm frequency. In Study 3, emotion regulation coping demonstrated a significant ordered effect such that those with no history of self-harm were higher in emotion regulation than those with a history of NSSI only, who, in turn, were higher than those with a history of NSSI + SB. Here, it is important to note that while the ordered effect was statistically significant, the medians for the NSSI and NSSI + SB groups were tied. These studies suggest that higher emotion regulation coping may be protective. However, results of Study 2 indicate that, in those with a recent history of self-harm, those who self-harmed in relation to the stressor described were higher in emotion regulation coping than those who thought about self-harming but did not act, and those with no self-harm experience. The reason for this difference in findings is unclear. However, the decisions made in regard to the inclusion or exclusion of "other" forms of self-harm may provide a partial explanation (see Section 7.4.1.1.1.1.1).

Considering within-person effects (Study 4; Chapter 5), higher emotion regulation coping *for that individual* was associated with lower self-harm urge intensity and the intensity of overall self-harm experience. Emotion regulation coping also moderated the relationship between stress and some same-day self-harm experiences (self-harm behaviour; thought intensity; urge intensity; overall intensity of self-harm experience) such that at low levels of coping the relationship between stress and self-harm experience was strengthened and at high levels of coping *for that individual* the relationship was not significant. There was no main or interaction effect for emotion regulation coping on self-

harm thought (“yes”/“no”), time spent thinking about self-harm or difficulty resisting self-harm.

7.3.3 Asking about certainty in relation to intention to live and intention to die and assessing in a non-dichotomous manner

Results of Study 4 (Chapter 5) indicate that if intention to die and intention to live are asked (or indeed assessed) exclusively in a dichotomous manner (“yes”/“no”), a proportion of people who express a degree of ambivalence in Likert measurements (11.29% of days where self-harm was reported) are missed. This ambivalence was captured in both intention to die and intention to live ratings (see Section 5.3.1.3.3.7). Furthermore, it is important to note that people were unsure of their judgements regarding their intention to live or intention to die on nearly a quarter of ratings (24.19% of days where self-harm was reported). A lack of certainty was demonstrated in both intention to die and intention to live ratings. Clinicians, and those assessing risk, should be mindful of this and, in addition to asking questions regarding intention, should ask about the certainty with which people are making these judgements.

7.3.4 Harm minimisation strategies should not be recommended in isolation and their use must be monitored

Results of Study 5 (Chapter 6) indicate that, overall, young people do not find harm minimisation strategies effective. Young people rarely reported these strategies as a form of coping, while others report escalation to the point that the harm minimisation strategy becomes a means of self-harming. Concern was levelled that these strategies did nothing to address the underlying distress or causes of the young person’s self-harmful thoughts and behaviour. The young

people's experiences with harm minimisation need to be considered in the context of these strategies being widely recommended by clinical services and how this could be perceived by young people (e.g., being repeatedly asked to try strategies that "do not work"). It is recommended that harm minimisation strategies are not encouraged in the management and treatment of self-harm; if they are used they should not be used in isolation (e.g., in the absence of work addressing the dynamics underpinning self-harm engagement for that individual), the goals of advocating for, and utilising, harm minimisation should be explored and explicated (i.e., from the client and the clinicians perspective), and the use of such strategies must be closely monitored (e.g., what is the young person's experience of harm minimisation? Is harm minimisation 'advice' being given in the absence of additional follow up within services?).

Over-reliance on harm minimisation strategies may direct focus away from core psychological factors and send a dismissive and potentially harmful message to young people accessing services for self-harm (Townsend, 2014). Systematic reviews of RCT evidence have identified some treatments that *are* effective in the management of self-harm (Hawton et al., 2016; Hawton, Witt, et al., 2015). While high-quality evidence, and more evidence, is needed to further develop the evidence base, at present these treatments have the best available support and thus should be recommended and adequately resourced.

7.3.5 Clarity in delivery of the message that there is no safe overdose

Results of Study 5 (Chapter 6) indicate that some young people are unclear of the dangers associated with overdose, particularly in regard to over-the-counter

or prescription medication. This is of concern given the risks involved and the potential lethality of some readily available means of overdose (e.g., Paracetamol poisoning). While the NICE guidance is clear that there is no safe overdose (National Institute for Health and Care Excellence, 2004), this message does not appear to be reaching the end user (i.e., people at risk). Enhanced clarity about the risks involved in *any* overdose is recommended. This is particularly important given empirical evidence suggesting that – while not clear cut (e.g., Haw et al., 2003) – suicidal intent and potential lethality of an act of self-harm may not always be well-aligned (e.g., Eaton & Reynolds, 1985; Plutchik et al., 1989) and the recommendation that lethality and suicidal intent be considered as largely separate dimensions of self-harm (Gjelsvik et al., 2017).

Careful consideration would need to be given as to how to achieve the balance between ensuring that the message that there is no safe overdose is clearly conveyed, without unnecessary information regarding the lethality of particular drugs being communicated, should this become too 'instructional' for those who seek to end their lives.

7.4 Reflexivity and research practices: Strengths, limitations, and considerations

During the process of conducting the doctoral research presented within this thesis, a number of key questions and reflections have arisen, primarily regarding methodological and ethical issues. These are discussed, considering the strengths and limitations of the research presented and additional considerations arising.

7.4.1 Methodology and study design

The use of a combination of cross-sectional surveys, with large sample sizes, and micro-longitudinal methodology embedded within a longitudinal protocol enabled the research presented within this thesis to more fully investigate within- and between-group relationships between key theoretically derived, psychological variables and changes in self-harm thoughts and behaviours. The use of both qualitative and quantitative methodologies allowed for appropriate matching of research questions to methodologies and an opportunity to more comprehensively address the questions posed.

7.4.1.1 Measurement

7.4.1.1.1 The assessment of self-harm

7.4.1.1.1.1 The Inventory of Statements About Self-injury

There is no universal, 'gold standard' assessment for self-harm. Throughout the research presented within this thesis, the Inventory of Statements About Self-Injury (ISAS: Klonsky & Glenn, 2009; Klonsky & Olino, 2008) was used to assess self-harmful behaviour engagement, with amendments made to timeframe and intention (i.e., absence of intent versus regardless of intent) in line with the research aims. The exception to this is the qualitative aspect of the mixed methods study presented in Chapter 6 (Study 5b). This pre-collected data utilised a differing inventory assessment of behaviour (albeit with considerable overlap) and the secondary data analytic approach precluded harmonising these assessment approaches.

While the standardisation of measurement across datasets permitted: (i) the subsampling of datasets to meaningfully address the research questions posed, and (ii) the comparison of study samples, it is not without its limitations. The measure arguably does not cover all behaviours which would constitute self-harm in line with UK clinical guidelines (National Collaborating Centre for Mental Health, 2011; National Institute for Health and Care Excellence, 2004). While the measure contains an "other" category, and some participants did use this to report a range of behaviours (see Chapter 6), anecdotal evidence from research conducted within the laboratory setting (Dataset 2; Dataset 5) suggests that many participants were unsure whether their experience 'counted' as self-harm if not indicated within the inventory (and, on some occasions, behaviour that was specified within the measure). It is unclear whether participants completing a self-report survey online, in the absence of a researcher to confirm the 'validity' of their experience, would report or omit their behaviour (or, indeed, the percentages that would do so).

While the Inventory of Statements About Self-Injury instructs participants to "estimate the number of times in your life you have intentionally (i.e., on purpose) performed each type of (non-suicidal)[35] self-harm (e.g., 0, 10, 100, 500)", participants may be unclear as to whether they are to report the number of episodes of self-harm, or the number of discrete injuries. Interpreting the instructions as the number of episodes may lead to marked underestimations in frequency, compared to interpreting the instruction as number of injuries. Further to this, those with higher volumes of self-harm may

[35] While included within the original phrasing of the measure, the need for the behaviour to be enacted in the absence of intent was omitted throughout much of the work presented within this thesis.

round their frequencies for each behaviour to the nearest 10, or 100 (a tendency which may have been amplified by the measure's inclusion of exclusively rounded numbers in the examples given), whereas those with fewer incidences in total may report more accurately. Some participants entered predominantly very large, rounded figures on all indicated behaviours (see Study 1). The figures were taken to indicate frequent engagement (e.g., 'thousands of times') rather than a literal count. In Study 1, lifetime frequency was capped at 50,000, given the spread of the data. While this affected less than 1% of participants, and did not affect the sample *Mdn* or IQR, this interpretation of the measure and pre-analysis screening should be noted. In Study 5, participants' lifetime estimates of the number of self-harm episodes at time two were compared to the sum of their estimates of lifetime history of self-harm at time one and last year self-harm. The sum of last year self-harm plus lifetime history figures at time one were significantly higher than lifetime history estimates at time two. Again, this inconsistency adds to the complications of self-report frequency data and is a caveat in light of which the results should be interpreted.

7.4.1.1.1.1.1 "Other" self-harm

The capturing of "other" behaviour, which the participant viewed as a form of self-harm for them, posed a methodological decision of whether or not to include these behaviours, for example in lifetime frequencies or when defining group membership. The "other" behaviours were many and varied; while often related to eating disordered behaviours (e.g., restricting intake; bingeing; purging), "other" behaviours included (but were not limited to) punching hard objects, substance misuse, attempted drowning, pulling out eyelashes, ligation, inhaling dangerous chemicals, jumping from height onto hard surfaces, and

self-stabbing. Sometimes behaviours reported within "other", could arguably be categorised within the main inventory items (e.g., overdosing, reported as "other", arguably fits within the umbrella "Swallowing dangerous substances"). Existing research suggests that those with a history of self-harm do not share a consistent view of what 'counts' as self-harm; some participants were reluctant to 'discount' any form of reported self-harm (as they were still viewed as indicative of distress and were a worrying behaviour) whereas others suggested that they would *not* count some forms of self-harm (e.g., headbanging; biting) (Owens et al., 2020). Interestingly, both of the stated examples would fall within the UK definition of self-harm, and biting is a response item in the ISAS.

In Study 1 (Chapter 2) ISAS "other" behaviours were included within the definition of groups (lifetime self-harm versus no-self-harm) and in the lifetime frequency calculations. Only one participant reported only an "other" behaviour (out of 1,173 who reported a lifetime history of self-harm in response to the ISAS). In Study 3 (Chapter 4), "other" methods were included within the number of methods calculation. No participant reported only an "other" form of self-harm and not a main inventory item. In Study 4 (Chapter 5), ISAS "other" behaviours were also included in lifetime frequency and daily frequency counts. Here, everyone who reported a lifetime "other" behaviour also reported an ISAS main inventory item (i.e., another form of self-harm). On six of the 62 days when people reported self-harm in the study periods, the behaviour reported was "other". On one of these days, the "other" behaviour co-occurred with a main inventory item of self-harm. In Study 5a (Chapter 6), it was central to the research questions posed that "other" behaviours were: (i)

included, and (ii) explored (i.e., what "other" behaviour was reported? Was harm minimisation reported as an "other" form of self-harm?).

In Study 2 (Chapter 3), when defining the enactment group, only those who endorsed a main inventory self-harm behaviour or specified 'self-harm', in the absence of additional context, were classified within this group. Frequently reported "other" behaviours related to disordered eating or indeed eating disorders (see Chapter 6). This falls outside of the scope of NICE defined self-harm. However, rigid restriction to the inventory also means that behaviours which would fall within UK definition could, in essence, be 'missed'. There was also some 'grey area' responses where it was unclear precisely what the participants meant (e.g., "Well I fasted for the week and lost a lot of hair and blood. It was bad" [ID: 1183]). Upon reflection, if feasible (e.g., if a research intern could be recruited), it would have been beneficial for two coders to code the coping response data to determine group classification (i.e., no self-harm; ideation; enactment). Within this: (i) coders could rate in relation to the NICE definition, as opposed to the ISAS inventory, (ii) interrater reliability could be calculated, and (iii) any discrepancies could be discussed and resolved. It is not known what impact, if any, the decisions made regarding the inclusion or exclusion of "other" behaviour had upon reported results and all findings presented should be interpreted in light of this context.

7.4.1.1.1.2 The assessment of suicidal behaviour

In Dataset 2 and Dataset 4 suicidal behaviour was measured using a single item. This was chosen so as not to overburden participants in what was, in the case of Dataset 2, an already long research protocol. Single-item assessments capturing the presence or absence of suicidal behaviour are

frequently used in suicide science (Nock et al., 2008). Indeed, many commonly employed assessment tools (e.g., The Youth Risk Behavior Survey [YRBS]; The World Health Organization [WHO] Composite International Diagnostic Interview [CIDI]) contain single-item measures of suicide attempt, from which our question was adapted. However, it has been argued that the use of single-item, self-report assessment leads to problems of misclassification and, consequently, can lead to an increased chance of statistical decision errors (Millner et al., 2015). Upon reflection, while at the outset of my PhD I considered that an event such as a suicide attempt might be distinct and therefore clearly 'known' by the participant, I now appreciate the complexities which may surround determination of an attempt, and indeed certainty in reporting (e.g., fluctuations in suicidal intent; perceived lethality of an act). More comprehensive questioning regarding suicide attempts may have benefitted the work presented.

7.4.1.1.2 The assessment of coping

The Functional Dimensions of Coping scale (FDC: Ferguson & Cox, 1997) was used in all studies presented within this thesis. While the FDC outlines emotion regulation as "behaviours that the person *believes* will allow them to deal with the emotional consequences of the stressful encounter" (section one, page one), arguably a number of the scale items appear to relate more readily to the efficacy of these efforts, rather than the motivational and functional dynamics underpinning the coping effort per se (e.g., "To what extent did this/these activities *allow you* to manage the distress and upset caused by the event?", "To what extent did this/these activities *allow you* to handle any anxiety caused by the event?"). Given the established literature linking self-

harm to difficulties in emotion regulation (Gratz & Roemer, 2004), it may be that while individuals who self-harm are motivated to deal with aversive emotional outcomes of stressful/distressing events, in assessment of lifetime self-harm experience (Study 1; Study 3) they are low in endorsing the emotion regulatory items, due to the perceived inefficacy of their actions. However, some caution is advised in this interpretation as, in those with a recent history of self-harm, emotion regulation coping was higher in the enactment group (in response to a recent significant stressor) than both the ideation and no self-harm groups.

7.4.1.1.3 The assessment of experiential avoidance

Experiential avoidance was assessed using two differing measures; in Study 1 (Chapter 2) the AAQ-II (Bond et al., 2011) was used, in Study 3 (Chapter 4) the MEAQ (Gámez et al., 2011) was used. Some criticisms have been levelled at the AAQ-II with questions raised as to what the measure really captures. Results of exploratory factor analysis of: (i) AAQ-II items, (ii) items developed to related to acceptance or non-acceptance[36], and (iii) items developed to relate to experiencing distress[37], indicate that the items of the AAQ-II were more strongly related to items pertaining to experiencing distress, than those designed to assess acceptance or non-acceptance, with "minimal references" to functional outcomes (Wolgast, 2014, p. 831). Therefore, the discriminant validity of the measure is questionable. In the work presented in this thesis,

[36] (e.g., "I let me thoughts and feelings come and go, without trying to control or avoid them"; "When I feel depressed, worried or anxious, I do not try to influence or change those feelings.") (Wolgast, 2014, p. 837).

[37] (e.g., "I often feel depressed, worried or anxious; "I have many problems in my life.") (Wolgast, 2014, p. 837).

negative affect, as measured by the PANAS (Watson et al., 1988), was moderately correlated with experiential avoidance, as measured by the AAQ-II (.690; Chapter 2). Wolfgast (2014) notes that the MEAQ "seems to be a more promising measure of experiential avoidance/psychological inflexibility than the AAQ-II, but might also suffer from some of the same limitations, such as strong correlations with neuroticism and an uncertainty as to what some items really measure" (p. 383). There is some evidence to support the use of the MEAQ, over the AAQ-II, in the context of trauma-related symptoms given initial empirical support for the discriminant validity of the MEAQ in this context (Lewis & Naugle, 2017). It remains a question as to the optimal measure to assess experiential avoidance within the current context.

7.4.1.2 Cross-sectional research

Studies 1, 2, 3, and 5b were cross-sectional, self-report surveys. This precludes an ability to draw conclusions regarding causality. Study 4 extends this research; through repeated (daily) sampling, same-day associations can be explored. However, again temporal ordering cannot be established beyond it being a same-day event (i.e., the self-harm thought(s), urge(s) or behaviour(s) could have come before, during, or after the stressor encountered that day). Suggestions for future directions of research (see Section 7.5) include considerations of how this could be addressed moving forward.

7.4.1.3 Mixed methods research

Research presented in Chapter 6 (Study 5) used a mixed methods design. Critical appraisal frameworks for mixed methods research consistently highlight the requirement to: (i) establish a clear rationale for the

methodological decision to include both qualitative and quantitative research in a mixed methods approach, and (ii) appraise the integration of these findings (qualitative and quantitative) (Heyvaert et al., 2013). A mixed methods approach was selected for the study as this was well-placed to address the research question posed. The combination of exploring participants' unprompted reporting of harm minimisation strategies as: (i) a form of self-harm, and/or (ii) a form of coping, in a large sample, with in-depth exploration of young people's experiences of harm minimisation, provided a more comprehensive and more complete understanding of service user views of this intervention. Exploration of the qualitative findings permitted insight into the meaning of the quantitative findings (e.g., how harm minimisation strategies can escalate to become an alternative form of self-harm behaviour). The findings were considered in combination when discussing the results and implications of the research. An exploratory mixed methods approach (convergent design) is considered a suitable first step in a greatly under-researched area (Creswell & Plano Clark, 2011).

Given the value of mixed methods research – and the ability of a qualitative component to 'unpack' the meaning behind quantitative findings – arguably the work presented within this thesis could have benefited from less reliance on quantitative methodology, in isolation. For example, the inclusion of a qualitative component in Study 2 could have addressed participants' perceptions of if and how coping relates to self-harm experience and whether changes in coping are associated with changes in self-harm experience, in response to a given stressor. While it is not known what this research would have bought to the findings, it is possible that a more in-depth, qualitative exploration may have helped us to unpack the seemingly inconsistent findings

regarding emotion regulation, as well as exploring the potential impact of the FDC phrasing (see Section 7.4.1.1.2).

7.4.1.4 Retrospective, self-report

All studies presented within this thesis rely on self-report. Issues with retrospective accounts and recall bias are well-documented (e.g., Hassan, 2005). Indeed, the research presented within this thesis demonstrates inconsistencies with self-reported history (see Chapter 5). This may be particularly marked when recalling events over long periods of time (e.g., years) or when experiences are repeated (and therefore may become conflated or indistinct in the mind). In an effort to counter some of these limitations, in Study 2 the research focused on self-harm within a restricted, recent timeframe (last 3 months) and in Study 5 micro-longitudinal research was embedded within a longitudinal research protocol. Whilst still reliant on self-report, this limits the period of recall (for the data in the principal analysis, addressing the research questions posed) to the same day.

7.4.2 Ethical considerations

Ethical considerations are, rightfully, of central importance when considering research exploring self-harmful thoughts and behaviours. While empirical evidence suggests that inquiring about self-harmful thoughts and behaviours is a justifiably safe practice, including in non-treatment protocols (Dazzi et al., 2014; DeCou & Schumann, 2018; Gould et al., 2005; Mathias et al., 2012; Smith et al., 2010) (see Section 1.11), it is not safe to assume that no participant will become distressed before, during, or after taking part in research.

All the participant information sheets used throughout this doctoral work made it clear that engagement in, or completion of, the study was voluntary and that they would not be disadvantaged should they elect to withdraw at any stage (e.g., Research Participation Scheme credits, which represent partial course credits for first year undergraduate Psychology students, would still be allocated). Information about services and signposting to sources of support was available to the participants from the outset and throughout participation. The information was provided as a weblink in online protocols so that a participant could still access it even if exiting the study. Finally, 'howlers' – funny exam answers – were included in the debrief of all protocols as a mood repair (Göritz, 2007).

While every effort was made at the outset of this research to ensure the upmost ethical standards were maintained, learning throughout this process means that in conducting future research a number of additional considerations will be held in mind. Firstly, the measurement of participant wellbeing before, during, and after participation; this would allow researchers to quantitatively gauge the impact (or lack thereof) that engaging in our research protocols has on participants, at least over immediate timeframes. In addition to providing information to the evidence base concerning the effect of participating in research in this area, the assessment of mood across the study would also permit the selection (and potential implementation, if necessary) of a study stop threshold, in the unlikely event that unacceptable numbers of people were being unduly, negatively affected (Townsend et al., 2020). The assessment of momentary mood has been successfully achieved via the implementation of a simple visual analogue scale (e.g., Townsend et al., 2016). The completion of

such an item (a number of times over the course of a study protocol) is unlikely to significantly extend the duration of the study or unduly increase the burden on participants.

Secondly, consideration would be given to the promotion (e.g., in online protocols) or completion of (e.g., in protocols in which a participant comes into the laboratory) a safety plan (see Stanley & Brown, 2012 for Safety Planning Intervention). This brief intervention helps individuals, in this instance participants, to consider ahead of time what resources are available to them to access should they face a period of increased stress, or indeed crisis (see Section 7.3.1). On research visits to the Suicidal Behaviour Research Laboratory (SBRL), University of Glasgow, and Nock Lab at Harvard, Harvard University, I have seen how safety planning has been successfully integrated into a comprehensive protocol of risk assessment, monitoring and management and this is something that I would take forward into future research. Introducing participants to and completing a safety plan may arguably, for some, influence a participant's coping responses (e.g., during a daily diary study period). While there is a possibility that this may meaningfully impact upon study outcomes (e.g., number of self-harm episodes recorded), participant welfare always remains of paramount importance.

Finally, considering welfare, researcher welfare is also of importance, albeit often overlooked in formal consideration of ethical issues. Upon reflection, it is advised that clinical supervision or access to clinical support is budgeted for in grant writing. While access to routine, clinical supervision may realistically not be available to all researchers conducting work on sensitive and highly emotive topics, it is important that researchers have space in which

they can discuss any impacts (positive or negative) that their research (and indeed academic life) is having upon them. While arguably not optimal, where clinical supervision is not available, this may take the form of regular laboratory meetings, or debriefing periods allocated during periods of recruitment. Regular laboratory meetings also offer the opportunity to practise key skills, such as considering and devising a safety plan, with colleagues ahead of meeting with participants.

7.4.3 Participant recruitment

Throughout the work presented in this thesis, the majority of participants have been young (study means of 16.98 - 20.08 years) and female (75%[38] - 86.66%). This may have implications for the generalisability of the findings within this thesis, not least given evidence that experiential avoidance is more strongly related to (non-suicidal) self-injury in females (Howe-Martin et al., 2012).

Country of completion data was only collected in Study 1, 2, 4, and 5b (qualitative component of the mixed methods study). In Study 1, the majority of participants were based in Europe (50.8%), around 40% were based in North America (41.7%) and 6.3% in Australasia. Very few participants were reached in South America (0.3%), Asia (0.8%), or Africa (0.1%)[39]. A similar breakdown was seen in Study 2 (North America: 45.5%; Europe: 44.5%; Australasia: 8.6%; Asia: 0.8%; South America: 0.5%; Africa: 0.2%). In Study 4 and 5b, all participants were resident in the UK when completing the research. While country of completion data was not collected in Dataset 4,

[38] However, it is important to note the omission of demographic information for 194 participants for gender (3.2%, *n* = 42 'prefer not to say'; 11.4%, *n* = 152 missing).
[39] Data was missing for one participant.

87.5% of participants in the Study 3 were recruited in Dataset 2 (see Section 1.13 and Figure 3 for an overview of PhD datasets mapping to thesis chapters). This was a laboratory-based study meaning that in this study too the majority of participants were UK-based at the point of participation. Research in the field is limited by a restricted focus on Western, Educated, Industrialized, Rich and Democratic (WEIRD) societies, with no apparent a priori grounds for considering that a given psychological phenomenon – or dynamic interplay of factors – is universal, based on sampling from a restricted subpopulation (Cha et al., 2018; Henrich et al., 2010). The applicability of findings to more divergent samples remains an unanswered question and results presented should therefore be interpreted within the caveat of narrow demographic variability.

Recruitment was conducted via social media channels (e.g., Twitter; Facebook), recruitment websites (e.g., Call For Participants), e-mailing listings (e.g., Self Injury Support UK), university e-mailings, the School of Psychology's Research Participation Scheme and poster advertisement around university campuses. While this elicited a high volume of responses, upon reflection, the homogeneity of the sampling may be called into question. Arguably a more comprehensive advertising approach (e.g., poster advertisements in the local area) might have broadened the reach of our recruitment (even within the confines of a requirement to have internet access to participate). In studies 1-4 (Chapters 2-5) participation was limited to those with internet access.

The recruitment strategy adopted, in essence, asked people to 'reach out' to us, as researchers. An alternative approach that attempts to more pro-

actively ‘reach in’ to potential participants (e.g., Research Café and Café Connect) may have implications for achieving more representative general population samples (see Section 7.4.4).

The thesis deliberately recruited from community samples, given that this is where the majority of self-harm occurs (e.g., Geulayov et al., 2018; McMahon et al., 2014). With the exception of Study 5b, it is not known what percentage of people had received medical and/or clinical attention or intervention for any history of self-harm. No study inclusion and exclusion criteria specified criteria based on diagnostic history. Participants were not screened for psychopathology (beyond anxious and depressive symptomatology in Study 2). While self-harm is a symptom of psychological distress, it can occur in the context of a range of psychological disorders (Gratz & Gunderson, 2006; Nock et al., 2006). The lack of assessment precludes an ability to partial out psychological context (beyond momentary affect in Study 1 and anxious and depressive symptomatology in Study 2). While the EAM is transdiagnostic, the ability to adjust for psychological context may be important given the demonstrated relationship between psychopathology and experiential avoidance (Berking et al., 2009).

While the extant literature indicates that many people think about self-harm but do not act on those thoughts (see Section 1.3), including those with a history of self-harm, the ideation only group achieved in Study 3 was small (4.3%, n = 50). Previous researchers have reported a marked difficulty in recruiting adequate numbers of participants who think about harming themselves, but have never acted (e.g., Hooley et al., 2010). It is therefore of interest to note that this difficulty is also apparent when considering those who

have a lifetime history of self-harm but are being recruited for their recent ideation. This may be a result of measurement or recruitment.

While anecdotal, evidence from research conducted within the laboratory setting (Dataset 2; Dataset 5) suggests that many participants were unsure whether their experience 'counted' as self-harm or, indeed, a suicide attempt. Ideation is arguably more 'grey', (potentially) transitory, and less concrete. Therefore, it is possible that participants are not certain whether their experience 'counts'. Additionally, if chronically experienced, ideation in response to a stressor may not be something that is spontaneously free-reported.

Employing a staged, more targeted advertising approach may aid in the recruitment of participants with a range of self-harm related experiences. For example, a research study could use: (i) 'general advertising' (e.g., Research opportunity: Coping and wellbeing), (ii) 'mid-level advertising', aiming to recruit those with thoughts of harming (e.g., Research opportunity: Coping, self-harm thoughts and behaviour), and (iii) 'direct advertising', aiming to recruit those who have self-harmed. This could include consideration of recency of self-harm (e.g., Research opportunity: Have you self-harmed in the last 3 months? Research opportunity: Recent self-harm, coping, and wellbeing).

The research presented in this thesis contains large, well-powered, survey studies, an interview study with 45 participants, and a daily diary study with participant numbers (e.g., Turner et al., 2019) and total number of observations (e.g., Czyz et al., 2019) comparable to some of those reported in the existing literature. However, in Study 2 (Chapter 3) and Study 3 (Chapter 4) the study sample did not include enough participants with suicidal thoughts

and behaviours in response to a recent stressor (Study 2) and lifetime suicidal behaviour but no non-suicidal self-injury (Study 3) to have adequate power to include these as outcomes (Study 2) or as a grouping variable (Study 3). While the window for recruiting participants within the scope of a PhD could be considered a factor in the samples achieved, routes of recruitment are likely to have been a more influential factor. Developing and nurturing relationships with external organisations may ameliorate this issue in future research. For example, in a study not reported in this thesis, when working in collaboration with Samaritans (who publicised the research on their website and social media channels) and researchers at the University of Bristol, we achieved a sample of 1,679 completed responses from adult participants affected by suicide in just 1 month (from a pool of 2,719 people who entered the survey) (Padmanathan et al., 2019). Involvement might also assist in the recruitment of participants and establishing connections with external services and organisations (see Section 7.4.4).

7.4.4 Involvement and engagement

Increasingly an integral aspect of mental health research (Mawn et al., 2015), public involvement in research is defined by the National Institute for Health Research INVOLVE guidelines as "research being carried out 'with' or 'by' members of the public" (Hayes et al., 2012). The importance of involvement in mental health research is recognised by researchers, research participants, and stakeholders in the NHS and voluntary sector (Ghisoni et al., 2017; Hayes et al., 2012; Tarpey & Bite, 2014). Throughout the course of doctoral study, I have come from a position of naivety, through being introduced to the notion of involvement, to being convinced that all research should involve those with

lived experience, throughout the project lifecycle (e.g., Brett et al., 2014b). Those with lived experience are key stakeholders who hold valuable knowledge and expertise. Moreover, arguably, people have a democratic right to be involved in research which affects them (and which is often taxpayer funded). However, while the benefits of utilising service user perspectives when developing mental health services are often recognised, there is a tendency to overlook service users when planning research and setting its priorities (Minogue et al., 2005); indeed, this is something that I did not do during my doctoral work.

Well-planned public involvement work can: (i) focus research aims and methods, making research more relevant, (ii) enhance research participation (e.g. in marginalised groups) and make it more likely that achievement targets are met (Mawn et al., 2015), (iii) lead to research impact (Gomez & Ryan, 2016; Hayes et al., 2012), (iv) address stigma and raise awareness, and (v) enhance researcher knowledge and improve research delivery (Brett et al., 2014a; Jacquez et al., 2013)[40]. Including involvement within the lifecycle of this research would have offered the opportunity to 'double check' a number of our assertions and decisions (e.g., the relevance of the research questions posed; the suitability of the measure of self-harm; the frequency of reporting and duration of reporting for the daily diary study). Working alongside a group

[40] Importantly, there is also evidence of personal benefits to those members of the public who take part in involvement activities in mental health research, such as: (i) gaining knowledge, understanding, and expertise; development or refreshing of skills (e.g., communication skills; interpersonal skills), (ii) increased self-confidence and a sense of belonging and being valued, and (iii) a reduction in personal fears and self-stigma (where an individual agrees with/internalises negative public attitudes towards mental illness) (Curwen et al., 2019; Minogue et al., 2005; Patterson et al., 2014).

of involved individuals with lived experience may also have helped us to recruit more diverse samples (e.g., by recommendations for recruitment routes; through links with support agencies) and better devise a comprehensive dissemination strategy (e.g., ensuring that the key stakeholders in the eyes of those directly affected are targeted for dissemination; ensuring that key findings are appropriately prioritised; ensuring that research is shared in an accessible format). While it is not possible to conjecture the potential impacts for this project, involvement work informing mental health research priorities has highlighted some interesting discrepancies between the priorities of services users compared to those of professionals (Rose et al., 2008).

At the outset of my PhD I faced a number of challenges which, undoubtedly, fed into the lack of involvement within the doctoral project. A challenge of resources – as experienced by many ECRs (Wadman et al., 2019) – was a barrier to involvement work, both in terms of time, funding, and, during the initial stages of my PhD, skills, knowledge, and experience. Moving forward it is advised that grant applications budget (both in terms of time and funding) for a comprehensive involvement strategy embedded across the lifecycle of research (with training, where appropriate). Where this is not possible, or where PhD students or Early Career Researchers (ECR) face potentially prohibitive restrictions in terms of resources, it is recommended that researchers think creatively about how to best achieve their research involvement aims, by utilising technology and social media (i.e., virtual

involvement)[41] and by networking and collaborating with research colleagues in their field(s) (Wadman et al., 2019).

While not to the extent that I would now consider ideal, throughout my doctoral research I took part in some pre-organised, public involvement and engagement activities. These have largely been in the dissemination of findings. In addition to writing blogposts for the Institute of Mental Health (Nottingham), netECR, The Power to Persuade, PAPYRUS, and Rethink Mental Illness (see Appendix E), I took part in the Research Showcase – the university's flagship engagement event for postgraduate researchers to share their work with key stakeholders and members of the public –, Pint of Science – a series of events which bring researchers together with members of the public to share their findings in an accessible and engaging manner to promote conversation and discussion – and was a panel member and discussant as part of the Festival of Science and Curiosity.

I was also involved in Research Café (the pilot for Café Connect) and Café Connect. Building upon previous Research Café models[42,43,44] and 'Citizen science' and 'Participatory/Action research' models of public engagement (see Meyer, 2000 for disscussion of such methods in health-related research), Café Connect sought to meaningfully involve people across the lifecycle of research

[41] For example, see Dr Sarah Knowles' 'Digital and remote codesign discussion', a 'living' document pooling ideas and expertise on codesign within the context of the COVID-19 pandemic and the constraints inherent to the national response to the virus. https://docs.google.com/document/d/1nWKI1G_erwNyI4OuTVQT4vHznx417OPEVDO1ioi7xtA/edit

[42] http://recherche.institutpaulbocuse.com/fr/recherche/recherche-3320.kjsp?RH=RECH-FR

[43] https://www.cmu.edu/homepage/health/2010/spring/behavioral-cafe.shtml

[44] http://www.cafescientifique.org/

– not merely at the beginning or the end. Unlike previous research cafés, Café Connect engaged members of the public in a range of health-related research via a reciprocal learning process[45] using a range of activities and events. The Café 'popped up' in an existing city-centre café, meaning that – while well-advertised – many people came by it in a serendipitous manner (Townsend et al., in prep.). This allowed us, as researchers, to 'reach in' to people who may not otherwise 'reach out' to us within the university campus or be reached by our normal means of advertisement of opportunities.

In addition to sharing results, I collected data at the pilot Café (Research Café, August 2015). This study explored coping in relation to self-harm and aimed to test the feasibility of collecting data on sensitive topics within the Café environment. Across the two-day period in which the Café 'popped-up', a total of 74 people took part in the research (data not presented within this thesis). The participants ranged in age from 17-76 years, with a mean age considerably higher than that which we achieved in any study presented within the thesis (M = 36.73, SD = 15.57, missing n = 1). While the majority of participants were female (66.2%), the gender balance was again better than that which we achieved in studies 1-5 (75-86.66% female). Around 40% (41.9%) of the sample reported a lifetime history of self-harm (n = 34), ranging between 1 and 1,615 acts or episodes (M = 239.90, SD = 484.95). Again, the sample achieved here is more heterogeneous than typically achieved (ages 17-70 years: M = 31.84, SD = 14.42; female = 58.1%). This points to

[45] By increasing awareness about research, public engagement leads to increased involvement in research which consequently builds greater understanding between researchers and those with lived experience, translating to benefits for all involved: researchers, individuals, and society as a whole.

such models of involvement as being useful in countering some of the limitations of homogenous samples levelled at extent research, and indeed the research presented within this thesis.

7.5 Key directions for future research

Below, I outline key areas for future research. These directions of future research fall broadly under four categories: (i) replication, (ii) extension to more diverse samples, (iii) extending the exploration of change, and (iv) further exploring harm minimisation. While these indicate important 'next steps' from the doctoral research presented within this thesis, from my perspective, it is important to note that any future direction should be explored with the input and involvement of those with lived experience (including those who care for them) and where possible other key stakeholder groups (e.g., clinicians) (see Section 7.4.4).

7.5.1 Replication

Many of the effect sizes reported throughout this thesis are small. Given the background of the 'replication crisis' in psychological science (Lilienfeld, 2017; Maxwell et al., 2015; Shrout & Rodgers, 2018; Tackett et al., 2017), an important next step would be to test the replicability of these findings. This may involve direct replication, as well as conceptual replication (e.g., whether findings hold using alternative measures of experiential avoidance: see Section 7.4.1.1.3). Testing the replicability of findings both with and without the inclusion of the ISAS "other" category would also be a valuable extension to the presented work.

Within efforts to replicate research, it is important to remain cognisant that power calculations for replication are somewhat complex and may require large sample sizes (Maxwell et al., 2015). Recommendations have been made that the rule for determining the cessation of data collection should always be pre-determined and explicitly noted in publications (Simmons et al., 2011). It is recommended that attempts to replicate findings are based on multiple studies, rather than an individual dataset. Open science practices may also be advantageous (Carpenter & Law, 2019; Shrout & Rodgers, 2018), permitting critical review of all aspects of the research process.

7.5.2 Extending to more diverse samples

There is a need to extend this work beyond predominantly young, female samples. While this group are undoubtedly at high risk of self-harm (e.g., Gillies et al., 2018; Mortier, Cuijpers, et al., 2018), their over-representation in study samples is more likely to represent ease of access/ease of sampling in this group (e.g., the undergraduate Psychology programme is overwhelmingly biased towards female students). Extending initiatives such as Café Connect might be one route around this issue, as a less homogenous group of participants was achieved when recruiting at the pilot Research Café (see Section 7.4.4). Extending research to consider clinical/therapeutic samples and/or school-based research may provide an alternative way of achieving a more diverse sample (in the clinical sample in terms of age, gender, lifetime engagement characteristics; in the school-based sample primarily in terms of gender).

While beyond the scope of this PhD, establishing and nurturing international connections with researchers and key stakeholders (e.g., non-governmental organisations [NGOs], clinicians, policy makers) outside of so-called 'WEIRD' societies should be considered. Cross-cultural comparisons and the testing of theoretical models in other cultures is highly likely to challenge and change some of our understanding of self-harm. This is important given that most suicide deaths happen in low- and middle- income countries (World Health Organization, 2014) (whereas most suicide prevention research occurs in high-income countries).

7.5.3 Extending the exploration of change

The work in this thesis focuses primarily on understanding change in those with histories of self-harm and theoretically derived, psychological factors which may: (i) determine self-harm experience (no self-harm; ideation only; enactment) in response to a given situation, and (ii) predict the repetition of self-harm over time (e.g., frequency). Change was also considered by examining whether factors which are predicted to differentiate those who have ever self-harmed from those with no history of self-harm behaviour also: (i) predict the recency and frequency of self-harm, and (ii) differentiate groups with differing intent histories (no self-injury; non-suicidal self-injury only; non-suicidal self-injury plus suicidal behaviour). Finally, the work presented considered change by exploring young people's views of an intervention (harm minimisation – sensation and process proxies) designed to prevent the transition from self-harm thought(s) to self-harm behaviour(s) or to replace self-harm with a less medically harmful alternate behaviour.

Future research may seek to extend this work by considering other manifestations of change. For example, change could be considered in terms of method of self-harm (e.g., does the magnitude of relationship between self-harm and experiential avoidance differ across different mechanisms of injury [e.g., self-cutting versus self-poisoning]? Do functional coping dynamics predict what form of self-harm someone is more likely to engage in, on a given occasion? Is a change in coping dynamics associated with methods substitution?). It may also be beneficial to consider frequency and recency together, rather than as two separate outcomes, given evidence that those with lived experience report an inverse relationship between frequency and (medical) severity of self-harm (Owens et al., 2020). Finally, while the current work considers how people deal with difficult days, consideration of the content of the stressor was not given. Moving forward, it might be important to consider the nature of the stressor faced – for example, research indicates that interpersonal conflict may be particularly related to self-harm (Townsend et al., 2015) – and whether coping moderates the relationship between the nature of the stressor and self-harm experience (or lack thereof). Using content analysis to explore the descriptions of the stressors obtained may offer a first step in addressing this point, moving forward.

7.5.3.1 Extending the daily diary study

A key future direction for research would be to extend the daily diary study. This could be considered in terms of methodology or analytic approach. A primary focus for extending this work would be to develop a more fine-grained appreciation of temporal dynamics. While this could be achieved through a more intensive assessment schedule, it is questionable as to whether

participants would have an experience to meaningfully report upon (i.e., that they would have faced a stressor that they needed to cope with). A simple alternative would be to maintain a daily diary format, as opposed to EMA methodology, but to ask participants to indicate if any reported self-harm experience happened before, during, or after the stressor described (with an appreciation that it may span more than one time period). The CaTS card sort task (Townsend et al., 2016) offers an alternative avenue for exploring temporal dynamics and the patterns of thoughts, feelings, events, behaviours, and support seeking leading up to, during, and after a target event. This target event is, in the original conceptualisation, an episode of self-harm. However, the item could be altered to represent a significant stressor faced. Development of an online or app-based version of the CaTS would facilitate easy daily completion. Cards could be added to the original sort to reflect key constructs (e.g., functional coping dynamics; experiential avoidance) with the sequences in participants' sorts being compared between days where they did and did not have self-harm experiences (e.g., thoughts; urges; behaviours).

A potential avenue to broaden our understanding of coping dynamics would be to adopt a mixed methods approach. Daily diary study methodology could be combined with photo elicitation; in addition to asking people to report what they believe that their coping will achieve on a standardised Likert-type scale, participants would be asked to capture something that represents their coping response(s), for them, in photographic format. These images would then be used as cues for use in qualitative interviews exploring people's perceptions of if, and how, their coping relates to self-harm experience. The inclusion of

qualitative interviews would also permit exploration of some of the broader considerations of 'change', as outlined above.

Theoretical testing of the EAM (Chapman et al., 2006) could be extended to a daily diary format. Here, models could assess the relationship between experiential avoidance and same-day self-harm experiences. The impact of theoretically determined moderators (e.g., distress tolerance) could also be modelled. Dependent upon the sample achieved, associations tested between groups within the current thesis could be explored within-person (e.g., does experiential avoidance predict the frequency of same-day self-harm behaviour? Are experiential avoidance and functional coping dynamics associated with same-day suicidal behaviour?). The measurement of daily experiential avoidance would also offer insight into the variability or stability of the construct over time. Careful consideration of the measurement items would need to be given. In light of the criticisms levelled (Wolgast, 2014) at the AAQ-II (Bond et al., 2011) (see Section 7.4.1.1.3), while balancing the need to devise protocols which are not burdensome for participants, using a combination of the AAQ-II and MEAQ brief (Gámez et al., 2014) may be one option. Beyond the scope of this thesis, modelling could take into account between- verses within- person effects, random versus fixed slopes, and the effects of grand versus participant-mean centering.

Finally, a valuable extension to the daily diary study work presented would be to extend the study to other samples, particularly those where change is likely. One route to achieve this could be to recruit a community schools-based sample, given evidence regarding the typical age of onset of self-harm behaviour (Gillies et al., 2018) and also the high levels of repetition (Madge et

al., 2008), including across 6-month timeframes (O'Connor, Rasmussen, & Hawton, 2009; Stallard et al., 2013), which would be appropriate for follow up at time two (i.e., so that study completion would fall within an academic year, potentially permitting recruitment of participants in years 7 through 11). Utilising a school-based sample holds the potential to capture new self-harm thoughts and behaviour. It would be interesting to explore whether dynamics here differ relative to more established self-harm, given evidence of some change in the pattern of thoughts, feelings, events, behaviours, and support service utilisation comparing first ever to last episode self-harm in young people (Townsend et al., 2016). Clinical samples offer an alternative opportunity to explore change; for example, using micro-longitudinal daily diary methodology, embedded within a longitudinal research protocol, it would be possible to explore change across the life-course of a therapeutic intervention. This holds the potential to identify mechanisms of change.

7.5.4 Harm minimisation

In developing a comprehensive understanding of the current recommendation and use of harm minimisation within clinical services, and the perceived utility of harm minimisation strategies, it is important that future work explores: (i) where and how these practises are being used. This could be achieved via auditing or scoping type exercises to ascertain, for example, whether NHS Trusts or teams have specific policies or resources that they work on with clients around harm minimisation. An alternative strategy would be to adopt an ethnographic approach to explore if and how this intervention is discussed and implemented within key teams (e.g., liaison psychiatry; Crisis Resolution and Home Treatment Teams), (ii) how and where people first encounter

information regarding harm minimisation (e.g., in clinical services; online; from peers), (iii) perspectives on the perceived utility of harm minimisation strategies from clinicians who have used, or do use, them in their clinical practice; (iv) the views of those who self-harm of harm minimisation strategies other than sensation and process proxies (i.e., harm reduction; damage limitation), and (v) whether people's views on harm minimisation change over time or are dependent upon factors such as the length and extent of self-harm history.

7.6 Conclusions

In summary, this thesis has contributed five empirical studies exploring how people deal with difficult days and whether experiential avoidance and functional coping dynamics are associated with change in self-harm thoughts and behaviours. These studies are the first to consider self-defined, transactional functional coping dynamics, as conceptualised by Ferguson and Cox (1991; 1997), in relation to self-harm experience.

Results indicate that experiential avoidance and functional coping dynamics may be important psychological factors in understanding self-harm, regardless of intent (or lack thereof); these variables differentiate those with and without lifetime histories of self-harm, and also predict the recency and frequency of self-harm. Functional coping dynamics offer utility in differentiating those with differing self-harm experiences (e.g., thoughts; behaviours) in response to a given stressor, in both between- and within-person work. Harm minimisation – an intervention designed to stop the transition from thoughts to behaviours or to replace self-harm with an alternate, less

(medically) damaging behaviour – was viewed by young people with a history of self-harm as ineffective: “these things don’t work”.

Suggested directions of future research fall broadly under four categories: (i) replication, (ii) extension to more diverse samples, (iii) extending the exploration of change, and (iv) further exploring harm minimisation. It is important to note that any future direction should be explored with the input and involvement of those with lived experience and, where possible, other key stakeholder groups (e.g., clinicians).

Afterword

PhDs can be measured in a myriad of ways: number of publications; number of presentations; number of all-night writing sessions; number of weekends in the office marking or years of work. For better or for worse, mine can also be measured in the number of periods of hospitalisation. Mental illness has taken so much from me and on more than one occasion has threatened the completion of my doctoral work. It is fair to say that many people have questioned my ability to complete this PhD. Thank you to all those who have doubted; many days – especially dark days, lonely days, and days devoid of content – have been motivated by the wish to prove you wrong. Much more importantly though, thank you to Prof Ellen Townsend and Lydia Topliss for championing me unwaveringly and for finding the solutions that meant, however ill I was, there was an academic life for me to return to. Thank you for the motivation to prove you right. This work, and the publications arising from my PhD, are testament to what can be achieved – regardless of the circumstances – with the right support. I truly am one of the lucky ones. Thank you, immeasurably. There are no words.

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Appendix A: Ethics approvals

Dataset 1

The University of Nottingham

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tel: +44 (0)115 846 7403 or (0)115 951 4344

AS/hcf
Ref. 335R

1st October 2013

Dear Emma Nielsen & Ellen Townsend,

Ethics Committee Review

Thank you for submitting an account of your proposed research 'Avoidance and self-harm – online study'.

That research has now been reviewed, we are pleased to tell you it has met with the Committee's approval.

However:

Please note the following comments from our reviewers;

1. **Any poster placed outside the University should have the UoN logo on it.**
2. **It might be better to remove the cartoon character from the poster.**

Final responsibility for ethical conduct of your research rests with you or your supervisor. The Codes of Practice setting out these responsibilities have been published by the British Psychological Society and the University Research Ethics Committee. If you have any concerns whatever during the conduct of your research then you should consult those Codes of Practice.

Independently of the Ethics Committee procedures, supervisors also have responsibilities for the risk assessment of projects as detailed in the safety pages of the University web site. Ethics Committee approval does not alter, replace, or remove those responsibilities, nor does it certify that they have been met.

Yours sincerely



Dr Alan Sunderland
Chair, Ethics Committee

Dataset 2



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AS/hcf

Ref: 262R

Monday 11th February 2013

Dear Emma Nielsen,

Ethics Committee Review

Thank you for submitting an account of your proposed research 'A study investigating avoidance coping function and self-harm behaviour'.

That research has now been reviewed by the Ethics Committee and I am pleased to tell you that your submission has met with the committee's approval.

Final responsibility for ethical conduct of your research rests with you or your supervisor. The Codes of Practice setting out these responsibilities have been published by the British Psychological Society and the University Research Ethics Committee. If you have any concerns whatever during the conduct of your research then you should consult those Codes of Practice.

Independently of the Ethics Committee procedures, supervisors also have responsibilities for the risk assessment of projects as detailed in the safety pages of the University web site. Ethics Committee approval does not alter,

replace, or remove those responsibilities, nor does it certify that they have been met.

Yours sincerely



Dr Alan Sunderland

Chair, Ethics Committee

Dataset 3

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AS/hcf
Ref: 446

Wednesday, 19 February 2014

Dear Emma Nielsen,

Further to your request for Chair Approval for amendments to the project:-

Applicant: Emma Nielsen
Title: Avoidance and self-harm – online study
Date of approval: 14/4/2013
Ref. 335R

Title of the new project:- Avoidance, social support and self-harm – online study

Applicants: Emma Nielsen (supervisor Ellen Townsend)

As Chair of the Ethics Committee I am able to grant approval for the following changes:-

Inclusion of two measures of social support and proximity and a measure of distress tolerance as used in previously approved studies, with corresponding changes in Information Sheet and debrief procedures:

1. The Inclusion of Other in the Self Scale (IOS; Aron, Aron & Smollan, 1992)

2. The MOS Social Support Survey (Sherbourne & Stewart, 1991).

3. The Distress Tolerance Scale (DTS; Simons & Gaher, 2005).

To ensure that the survey is not unnecessarily time consuming the rRST will be omitted and the 15-item version of the MEAQ will be used.

Final responsibility for ethical conduct of your research rests with you or your supervisor. The Codes of Practice setting out these responsibilities have been published by the British Psychological Society and the University Research Ethics Committee. If you have any concerns whatever during the conduct of your research then you should consult those Codes of Practice. Independently of ethical approval, you are also responsible for risk assessment and data protection as detailed on the Ethics Committee web pages.

Independently of the Ethics Committee procedures, supervisors also have responsibilities for the risk assessment of projects as detailed in the safety pages of the University web site. Ethics Committee approval does not alter, replace, or remove those responsibilities, nor does it certify that they have been met.

Yours sincerely



Dr Alan Sunderland

Chair, Ethics Committee

Dataset 4

Ethics approval for this study is covered by 335R (dataset 1) and 262R (dataset 2).

Dataset 5



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Ref. 288

28th March 2013

Dear Emma Nielson,

Ethics Committee Review

Thank you for submitting an account of your proposed research 'Functional dimensions of coping and change in self-harm behaviour – diary study'.

That research has now been reviewed, to the extent that it is described in your submission, we are pleased to tell you it has met with the Committee's approval.

However:

Please note the following comments from our reviewers;

1. The information sheet at Time 1 does not mention the follow-up 6 months later, and that participants have to provide contact details. It also states that the questionnaires take 10 minutes to complete whereas in the main procedure of the ethics it states 15 minutes. Otherwise all ethical concerns seem to be addressed appropriately for the type of study/topic.

Final responsibility for ethical conduct of your research rests with you or your supervisor. The Codes of Practice setting out these responsibilities have been published by the British Psychological Society and the University Research Ethics Committee. If you have any concerns whatever during the conduct of your research then you should consult those Codes of Practice.

Independently of the Ethics Committee procedures, supervisors also have responsibilities for the risk assessment of projects as detailed in the safety pages of the University web site. Ethics Committee approval does not alter, replace, or remove those responsibilities, nor does it certify that they have been met.

Yours sincerely



Dr Alan Sunderland

Chair, Ethics Committee

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Ref: 367

4th November 2013

Dear Ellen Townsend and Emma Nielsen,

Ethics Committee Review

Further to your request for Chair Approval for amendments to the project:-

Applicant: Emma Nielsen (lpxen@nottingham.ac.uk).
Title: 'Functional dimensions of coping and change in self-harm behaviour – diary study'

Date of approval: 16.04.2013

Reference number 288

Title of the new project:-
Functional dimensions of coping and change in self-harm behaviour – diary study, social support measure

Applicants: Emma Nielsen & Ellen Townsend

As Chair of the Ethics Committee I am able to grant approval for the following changes:-

1. Inclusion of two measures of social support and proximity; The Inclusion of Other in the Self Scale (IOS; Aron, Aron & Smollan, 1992) and The MOS Social Support Survey (Sherbourne & Stewart, 1991).

2. Corresponding changes in the Information Sheet and procedure.

Final responsibility for ethical conduct of your research rests with you or your supervisor. The Codes of Practice setting out these responsibilities have been published by the British Psychological Society and the University Research Ethics Committee. If you have any concerns whatever during the conduct of your research then you should consult those Codes of Practice. Independently of ethical approval, you are also responsible for risk assessment and data protection as detailed on the Ethics Committee web pages.

Yours sincerely



Dr Alan Sunderland

Chair, Ethics Committee

Appendix B: Measures

Experiential avoidance

Acceptance and Action Questionnaire II (AAQII)

AAQ II

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
never true	**very seldom true**	**seldom true**	**sometimes true**	**frequently true**	**almost always true**	**always true**

1.	My painful experiences and memories make it difficult for me to live a life that I would value.	1	2	3	4	5	6	7
2.	I'm afraid of my feelings.	1	2	3	4	5	6	7
3.	I worry about not being able to control my worries and feelings.	1	2	3	4	5	6	7
4.	My painful memories prevent me from having a fulfilling life.	1	2	3	4	5	6	7
5.	Emotions cause problems in my life.	1	2	3	4	5	6	7
6.	It seems like most people are handling their lives better than I am.	1	2	3	4	5	6	7
7.	Worries get in the way of my success.	1	2	3	4	5	6	7

Multidimensional Experiential Avoidance Questionnaire (MEAQ)



Please indicate the extent to which you agree or disagree with each of the following statements

1	2	3	4	5	6
strongly disagree	moderately disagree	slightly disagree	slightly agree	moderately agree	strongly agree

1.	I won't do something if I think it will make me uncomfortable	1	2	3	4	5	6
2.	If I could magically remove all of my painful memories, I would	1	2	3	4	5	6
3.	When something upsetting comes up, I try very hard to stop thinking about it	1	2	3	4	5	6
4.	I sometimes have difficulty identifying how I feel	1	2	3	4	5	6
5.	I tend to put off unpleasant things that need to get done	1	2	3	4	5	6
6.	People should face their fears	1	2	3	4	5	6
7.	Happiness means never feeling any pain or disappointment	1	2	3	4	5	6
8.	I avoid activities if there is even a small possibility of getting hurt	1	2	3	4	5	6
9.	When negative thoughts come up, I try to fill my head with something else	1	2	3	4	5	6
10.	At times, people have told me I'm in denial	1	2	3	4	5	6
11.	I sometimes procrastinate to avoid facing challenges	1	2	3	4	5	6
12.	Even when I feel uncomfortable, I don't give up working toward things I value	1	2	3	4	5	6
13.	When I am hurting, I would do anything to feel better	1	2	3	4	5	6
14.	I rarely do something if there is a chance that it will upset me	1	2	3	4	5	6
15.	I usually try to distract myself when I feel something painful	1	2	3	4	5	6
16.	I am able to "turn off" my emotions when I don't want to feel	1	2	3	4	5	6
17.	When I have something important to do I find myself doing a lot of other things instead...	1	2	3	4	5	6
18.	I am willing to put up with pain and discomfort to get what I want	1	2	3	4	5	6
19.	Happiness involves getting rid of negative thoughts	1	2	3	4	5	6
20.	I work hard to avoid situations that might bring up unpleasant thoughts and feelings in me	1	2	3	4	5	6
21.	I don't realize I'm anxious until other people tell me	1	2	3	4	5	6
22.	When upsetting memories come up, I try to focus on other things	1	2	3	4	5	6
23.	I am in touch with my emotions	1	2	3	4	5	6
24.	I am willing to suffer for the things that matter to me	1	2	3	4	5	6
25.	One of my big goals is to be free from painful emotions	1	2	3	4	5	6
26.	I prefer to stick to what I am comfortable with, rather than try new activities	1	2	3	4	5	6
27.	I work hard to keep out upsetting feelings	1	2	3	4	5	6
28.	People have said that I don't own up to my problems	1	2	3	4	5	6
29.	Fear or anxiety won't stop me from doing something important	1	2	3	4	5	6
30.	I try to deal with problems right away	1	2	3	4	5	6

1	2	3	4	5	6
strongly disagree	moderately disagree	slightly disagree	slightly agree	moderately agree	strongly agree

31.	I'd do anything to feel less stressed	1	2	3	4	5	6
32.	If I have any doubts about doing something, I just won't do it	1	2	3	4	5	6
33.	When unpleasant memories come to me, I try to put them out of my mind	1	2	3	4	5	6
34.	In this day and age people should not have to suffer	1	2	3	4	5	6
35.	Others have told me that I suppress my feelings	1	2	3	4	5	6
36.	I try to put off unpleasant tasks for as long as possible	1	2	3	4	5	6
37.	When I am hurting, I still do what needs to be done	1	2	3	4	5	6
38.	My life would be great if I never felt anxious	1	2	3	4	5	6
39.	If I am starting to feel trapped, I leave the situation immediately	1	2	3	4	5	6
40.	When a negative thought comes up, I immediately try to think of something else	1	2	3	4	5	6
41.	It's hard for me to know what I'm feeling	1	2	3	4	5	6
42.	I won't do something until I absolutely have to	1	2	3	4	5	6
43.	I don't let pain and discomfort stop me from getting what I want	1	2	3	4	5	6
44.	I would give up a lot not to feel bad	1	2	3	4	5	6
45.	I go out of my way to avoid uncomfortable situations	1	2	3	4	5	6
46.	I can numb my feelings when they are too intense	1	2	3	4	5	6
47.	Why do today what you can put off until tomorrow	1	2	3	4	5	6
48.	I am willing to put up with sadness to get what I want	1	2	3	4	5	6
49.	Some people have told me that I "hide my head in the sand"	1	2	3	4	5	6
50.	Pain always leads to suffering	1	2	3	4	5	6
51.	If I am in a slightly uncomfortable situation, I try to leave right away	1	2	3	4	5	6
52.	It takes me awhile to realize when I'm feeling bad	1	2	3	4	5	6
53.	I continue working toward my goals even if I have doubts	1	2	3	4	5	6
54.	I wish I could get rid of all of my negative emotions	1	2	3	4	5	6
55.	I avoid situations if there is a chance that I'll feel nervous	1	2	3	4	5	6
56.	I feel disconnected from my emotions	1	2	3	4	5	6
57.	I don't let gloomy thoughts stop me from doing what I want	1	2	3	4	5	6
58.	The key to a good life is never feeling any pain	1	2	3	4	5	6
59.	I'm quick to leave any situation that makes me feel uneasy	1	2	3	4	5	6
60.	People have told me that I'm not aware of my problems	1	2	3	4	5	6
61.	I hope to live without any sadness and disappointment	1	2	3	4	5	6
62.	When working on something important, I won't quit even if things get difficult	1	2	3	4	5	6

Affect

Positive and Negative Affect Scale (PANAS) (with momentary timeframe)

PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, at the present moment. Use the following scale to record your answers.

1	**2**	**3**	**4**	**5**
Very slightly or not at all	**A little**	**Moderately**	**Quite a bit**	**Extremely**

1. Interested …….....	**1 2 3 4 5**
2. Distressed ……	**1 2 3 4 5**
3. Excited …….	**1 2 3 4 5**
4. Upset ……	**1 2 3 4 5**
5. Strong ……..	**1 2 3 4 5**
6. Guilty …….....	**1 2 3 4 5**
7. Scared …….....	**1 2 3 4 5**
8. Hostile ……..	**1 2 3 4 5**
9. Enthusiastic …….....	**1 2 3 4 5**
10. Proud …….....	**1 2 3 4 5**
11. Irritable …….....	**1 2 3 4 5**
12. Alert …….	**1 2 3 4 5**

13. Ashamed …….....	**1 2 3 4 5**
14. Inspired ……	**1 2 3 4 5**
15. Nervous …….....	**1 2 3 4 5**
16. Determined …….....	**1 2 3 4 5**
17. Attentive …….....	**1 2 3 4 5**
18. Jittery ……...	**1 2 3 4 5**
19. Active ……	**1 2 3 4 5**
20. Afraid …….....	**1 2 3 4 5**

Hospital Anxiety and Depression Scale (HADS)

This questionnaire is designed to help us learn more about how you feel. Read each question and select the answer which comes closest to how you have been feeling in the past week. Don't take too long over your replies: your immediate reaction to each item will probably be more accurate than a long thought out response.

1. I feel tense or wound up

    Most of the time
    A lot of the time
    Time to time, occasionally
    Not at all

2. I still enjoy the things I used to enjoy

    Definitely as much
    Not quite so much
    Only a little
    Hardly at all

3. I get a sort of frightened feeling as if something awful is about to happen.

    Very definitely, and quite badly
    Yes, but not too badly
    A little, but it doesn't worry me
    Not at all

4. I can laugh and see the funny side of things

As much as I always could

Not quite as much now

Definitely not as much now

Not as all

5. Worrying thoughts go through my mind.

A great deal of the time

A lot of the time

From time to time but not too often

Only occasionally

6. I feel cheerful

Not at all

Not often

Sometimes

Most of the time

7. I can sit at ease and feel relaxed

Definitely

Usually

Not often

Not at all

8. I feel as if I am slowed down

Nearly all of the time

Very often

Sometimes

Not at all

9. I get a sort of frightened feeling like butterflies in my stomach

Not at all

Occasionally

Quite often

Very often

10. I have lost interest in my appearance

Definitely

I don’t take as much care as I should

I may not take quite as much care

I take just as much care as ever

11. I feel restless as if I have to be on the move

Very much indeed

Quite a lot

Not very much

Not at all

12. I look forward with enjoyment to things

As much as I ever did

Rather less than I used to

Definitely less than I used to

Hardly at all

13. I get sudden feelings of panic

Very often indeed

Quite often

Not very often

Not at all

14. I can enjoy a good book or radio or TV programme

Often

Sometimes

Not often

Very seldom

Coping

Functional Dimensions of Coping Scale (FDC) (with standard assessment timeframes and adapted timeframes)

FDC

Reporting a stressful event

In the space provided, please describe briefly **the most stressful event** that you experienced (in the last 3 months) (today).

This section concerns the behaviours you adopted in attempting to deal with the major stressor you described above. There are many different ways of dealing with stress. In the space provided below I would like you to give a brief description of those activities and/or thoughts you used in attempting to deal with the event described above.

We would now like you to provide ratings of these activities and/or thoughts by circling the appropriate number on the following scales.

To what extent did this/these activities						
	Not at all					Very much so
Allow you to directly deal with the problem?	0	1	2	3	4	5
Help you to find meaning and understand from the situation?	0	1	2	3	4	5
Allow you to manage the distress and upset caused by the event?	0	1	2	3	4	5
Allow you to grow and develop as a person?	0	1	2	3	4	5
Help you to divert your attention away from the problem?	0	1	2	3	4	5
Allow you to handle any anxiety caused by the event?	0	1	2	3	4	5
Provide you with information useful in solving the problem?	0	1	2	3	4	5
Allow you to deny that anything was wrong?	0	1	2	3	4	5
Enable you to deal with any emotional upset caused by the event?	0	1	2	3	4	5
Allow you to understand something of the nature of the problem, from which you could attempt to deal directly with it?	0	1	2	3	4	5
Allow you to avoid having to dealing directly with the situation?	0	1	2	3	4	5
Allow you to learn more about yourself and others?	0	1	2	3	4	5
Distract you from thinking about the problem?	0	1	2	3	4	5
Help you to think about the problem in a new and useful way?	0	1	2	3	4	5
Allow you a more optimistic outlook on the future?	0	1	2	3	4	5
Allow you to step back and look at the problem, in a different way, such that it seemed better?	0	1	2	3	4	5

Self-harm

Self-harm enactment

Inventory of Statements About Self-Injury (ISAS) (section one; with standard assessment and the need for the behaviour to be engaged in in the absence of intent omitted)

ISAS

This questionnaire asks about a variety of self-harm behaviors. Please only endorse a behavior if you have done it intentionally (i.e., on purpose) and (without suicidal intent [i.e., not for suicidal reasons]) (regardless of suicidal intent [i.e., whether for suicidal reasons or not]).

1. Please estimate the number of times in your life you have intentionally (i.e., on purpose) performed each type of (non-suicidal) self-harm (e.g., 0, 10, 100, 500):

Cutting	
Severe scratching	
Biting	
Banging or hitting self	
Burning	
Interfering with wound healing (e.g., picking scabs)	
Carving	
Rubbing skin against rough surface	
Pinching	
Sticking self with needles	
Pulling hair	
Swallowing dangerous substances	
Other (……...)	

Important: If you have performed one or more of the behaviours listed above, please complete the final part of this questionnaire. If you have not performed any of the

behaviours listed above, you are done with this particular questionnaire and should continue to the next.

2. If you feel that you have a *main* form of self-harm, please circle the behavior(s) on the first page above that you consider to be your main form of self-harm.

3. At what age did you:

   First harm yourself?

   Most recently harm yourself? (approximate data – month/date/year)

4. Do you experience physical pain during self-harm? Please circle a choice:

   YES SOMETIMES NO

5. When you self-harm, are you alone? Please circle a choice:

   YES SOMETIMES NO

6. Typically, how much time elapses from the time you have the urge to self-harm until you act on the urge? Please circle a choice:

   <1 hour 1-3 hours 3-6 hours

   6-12 hours 12-24 hours >1 day

7. Do/did you want to stop self-harming?

   YES SOMETIMES NO

Self-harm ideation

Alexian Brothers Urge to Self-Injure scale (ABUSI) (standard assessment)

The questions below apply to **the last week**. Place an "X" in the box next to the most appropriate statement

1. **How often have you thought about injuring yourself or about how you want to injure yourself?**
   - ☐ **Never**, 0 times in the last week
   - ☐ **Rarely**, 1 -2 times in the last week
   - ☐ **Occasionally**, 3 – 4 times in the last week
   - ☐ **Sometimes**, 5 – 10 times in the last week, or 1 -2 times a day
   - ☐ **Often**, 11 – 20 times in the last week, or 2 – 3 times a day
   - ☐ **Most of the time**, 20 – 40 times in the last week, or 3 – 6 times a day
   - ☐ **Nearly all of the time**, more that 40 times in the last week, or more than 6 times a day
2. **At the most severe point, how strong was your urge to self-injure in the last week?**
   - ☐ **None** at all.
   - ☐ **Slight**, that is, a very mild urge.
   - ☐ **Mild** Urge.
   - ☐ **Moderate** Urge.
   - ☐ **Strong** Urge, but **easily** controlled.
   - ☐ **Strong** Urge, but **difficult** to control.
   - ☐ **Strong** Urge **and would have self-injured if able to.**
3. **How much time have you spent thinking about injuring yourself or about how you want to injure yourself?**

☐ None.	☐ Less than 20 min.	☐ 21-45 min.	☐ 46-90 min.	☐ 90 min to 3 hrs.	☐ 3-6 hrs.	☐ More than 6 hrs.

4. **How difficult was it to resist injuring yourself in the last week?**

☐ Not difficult at all	☐ Very mildly difficult	☐ Mildly difficult	☐ Moderately difficult	☐ Very difficult	☐ Extremely difficult	☐ Was not able to resist

5. **Keeping in mind your responses to the previous questions, please rate your *overall average* urge or desire to injure yourself in the last week.**
   - ☐ **Never** thought about it and **never** had the urge to self-injure.
   - ☐ **Rarely** thought about it and **rarely** had the urge to self-injure.
   - ☐ **Occasionally** thought about it and **occasionally** had the urge to self-injure.
   - ☐ **Sometimes** thought about it and **sometimes** had the urge to self-injure.
   - ☐ **Often** thought about it and **often** had the urge to self-injure.
   - ☐ Thought about self-injury **most** of the time and had the urge to do it **most** of the time.
   - ☐ Thought about self-injury **nearly all** the time and had the urge to do it **nearly all** the time.

The interview schedule for study from which the qualitative harm minimisation data were gleaned.

The 'Listen-up!' project

Understanding looked-after young people who self-harm – interview study

<u>Interview schedule – young person</u>

Thank you very much for helping us with our research. This interview is about you and your experiences with self-harm. Take your time to think about and answer the questions. Some of the questions are about personal things like your feelings and things that have happened to you. You don't have to answer a question if you don't want to. I am audio (sound) recording this interview, but your name will not be included in any project documents or the written summary of this project. Do you have any questions before we start?

A. Background information.

**Add details on participant information form*

First, I would like you to tell me a little bit about yourself.

1. *Age and DOB *(record on participant details form)*

[Start recording]

2. *Are you in education or work at the moment (school, college, training, job)? What do you do?

3. *Have you ever been seen by CAMHS? Did you receive a diagnosis? (if yes, what?)

4. Do you have any hobbies or activities that you enjoy doing?

5. Who do you live with at the moment (foster parent, carer, parents, siblings). Where do you live at the moment (residential home, number of other young people) *[LAC only]?*

6. Have you lived with different people or different places in past? If yes, please tell me more about that (previous care placements, other relatives). *How many care placements? *Type (Council care home, private care home, foster care, secure care home)?

7. Do you have contact with your parents? *[LAC only]* Can you tell me about the contact you have with your parents? (who? how often?)

8. *How many times have you self-harmed? (Ask them to be as specific as possible e.g once, around 20 times, once a month etc. – get a number).

9. *How have you self-harmed? (cutting, burning, punching, misusing alcohol or drugs)

B. First time Initiation.

1. Please tell me about the first time you ever hurt yourself on purpose.

a) How old were you?

b) What was happening in your life generally?

c) What did you do?

d) What happened? Can you go through the sequence of events for me 'blow-by-blow'. Please describe any significant thoughts, feelings or behaviours at the time. Think very carefully about the ordering. What came first? What was next? What was next?

- What was the main feeling you had before (eg. Fear, anger, sadness, exhaustion?)
- Where did the idea come from?
- How long did you think about doing something before you actually did it?
- Was it an especially stressful time? (Why?)
- What was the outcome? (go to hospital?)
- What did you want the outcome to be? (Death? Escape from terrible state of mind?)
- Was the outcome what you wanted it to be?
- How did you feel after you had done it?
- How did the people around you react – if they found out? (friends, carers, parents).
- Did you think at that stage it would be something you would ever do again?

- Looking back, what do you think about what happened now?

C. Most recent episode

1. Please tell me about the most recent time you hurt yourself on purpose *(if a repeater)*

a) When did it happen?

b) What was happening in your life generally?

c) What did you do?

d) What happened? Can you go through the sequence of events for me 'blow-by-blow'. Please describe any significant thoughts, feelings or behaviours at the time. Think very carefully about the ordering. What came first? What was next? What was next?

- What was the main feeling you had before (eg. Fear, anger, sadness, exhaustion?)
- Where did the idea come from?
- How long did you think about doing something before you actually did it?
- Was it an especially stressful time? (Why?)
- What was the outcome? (go to hospital?)
- What did you want the outcome to be? (Death? Escape from terrible state of mind?)
- Was the outcome what you wanted it to be?
- How did you feel after you had done it?

- How did the people around you react – if they found out? (friends, carers, parents).
- Did you think at that stage it would be something you would ever do again?
- Looking back, what do you think about what happened now?

D. Maintenance of self-harm.

1. Why do you think you keep on harming yourself? (*If a repeater*)

2. What triggers self-harm for you? Feelings, people, relationships, situations, internet use?

3. Do you always do the same thing?

a) Does it change? Why?

b) Has the self-harm changed over time, places on body, instruments you use, severity of the cuts, feeling you get when doing it, belief that one day you will stop?

4. Are there any other things you do around the same time that you self-harm? (alcohol, drugs, caffeine, other behaviours)

5. Do you ever feel like self-harming but do other things instead (alcohol, drugs, stop eating or make yourself sick, hair-pulling, repetitive behaviours like hand washing)?

E. Other behaviours

1. Do you do other things that could be dangerous for you? (Drinking too much, having unprotected sex, driving too fast, starting fights)

2. What are the triggers for these behaviours?

F. Support

1. Who supports you when you feel distressed/when you self-harm?

2. What type of support or treatment is available for your self-harm?

a) Is it helping?

b) Helpful support? Unhelpful support?

3. What other supports would be helpful that are not currently available?

G. Recovery from self-harm.

1. What might stop you from hurting yourself?

2. Can anything stop you once the idea has taken hold? (harm minimization e.g., cuddle pet; pinching; rubber bands).

3. Would you like to stop?

4. What do you think might happen if you stopped?

5. What do you think would help you to stop?

H. Interview close

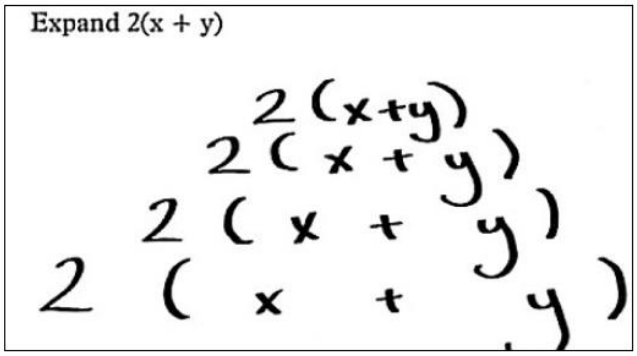
1. What should we ask you about self-harm that we have not already asked you about?

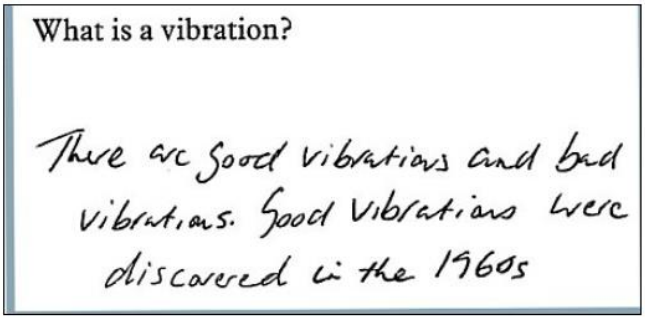
2. Is there anything else you would like to tell me about you and your experience with self-harm?

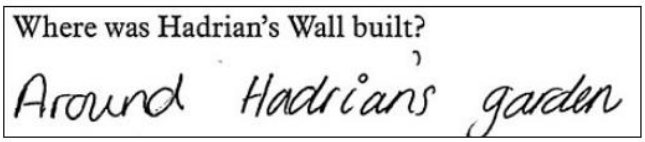
Appendix C: Positive mood induction

Howlers

We appreciate that taking part in research protocols can be a cognitively and emotionally demanding task. As light relief some exam howlers, funny answer actually given in tests, are presented below.







Explain the phrase 'free press'.

When your mum irons trousers for you.

Why would living close to a mobile phone mast cause ill health?

You might walk into it.

What is a fibula?

A little lie

Name the wife of Orpheus, whom he attempted to save from the underworld.

Mrs Orpheus

Where was the American Declaration of Independence signed?

At the bottom.

State three drawbacks of hedgerow removal.

1. All the cows will escape.
2. The cars drive into the fields.
3. There is nowhere to hide.

What is the meaning of the word 'varicose'?

Close by

Name six animals which live specifically in the Arctic.

Two polar bears
~~Three~~ Four Seals

Assess Fashion House plc's choice to locate its factory near Birmingham. Is Birmingham the right location for this type of business?

No. People from Birmingham aren't very fashionable.

How does Romeo's character develop throughout the play?

It doesn't, it's just self, self, self, all the way through.

Appendix D: Chapter 5 supplementary materials

Table 28. Overview of participants across the lifecycle of the research project.

ID	Age T1	Gender	Days between time points	Lifetime self-harm T1	Lifetime self-harm T2	Self-harm between T1 and T2	Time 1 (# days completed)	Number of consecutive days	Eligible for T2?	Started T2?	Time 2 (# days completed)	Number of consecutive days
1001	F	19	357	N	N	N	6	4	Y	Y	6	6
1002	F	18	353	N	N	N	5	5	Y	Y	5	5
1003	F	18	361	Y	Y	Y	6	5	Y	Y	6	6
1004	F	18	-	Y	-	-	6	6	Y	N	-	-
1005	F	19	353	Y	N	Y	7	7	Y	Y	6	6
1006	F	18	352	N	Y	Y	5	5	Y	Y	6	6
1007	F	24	351	Y	Y	N	5	5	Y	Y	6	6
1008	F	19	368	Y	Y	N	6	6	Y	Y	5	5
1009	F	18	-	N	-	-	7	7	Y	N	-	-
1010	F	18	365	N	Y	N	6	5	Y	Y	6	6
1011	F	25	365	Y	Y	Y	6	5	Y	Y	6	6
1012	F	18	371	Y	N	N	5	5	Y	Y	5	5
1013	F	18	366	Y	N	N	6	6	Y	Y	7	5
1014	F	19	-	N	-	-	5	4	Y	N	-	-
1015	F	18	369	Y	Y	Y	5	3	Y	Y	6	6
1016	F	18	364	Y	Y	N	6	5	Y	Y	6	6
1017	F	19	364	N	N	N	7	7	Y	Y	6	6
1018	F	19	-	N	-	-	5	5	Y	N	-	-
1019	F	18	363	N	N	N	5	5	Y	Y	6	6
1020	F	20	367	N	N	N	6	6	Y	Y	6	6
1021	M	21	365	Y	Y	Y	6	6	Y	Y	5	5
1022	F	19	353	Y	Y	Y	5	5	Y	Y	6	6
1023	F	19	353	Y	Y	Y	6	5	Y	Y	6	6
1024	F	18	-	Y	N	N	6	6	Y	Y*	0	0

1025	F	20	-	Y	-	-	4	3	N	N	-	-
1026	F	18	353	N	N	N	5	5	Y	Y	6	6
1027	F	18	359	N	N	N	5	3	Y	Y	6	6
1028	F	19	352	Y	Y	N	6	6	Y	Y	6	6
1029	F	19	358	N	N	N	6	5	Y	Y	8	7
1030	F	20	349	Y	N	N	5	5	Y	Y	6	4
1031	F	19	349	Y	Y	N	5	5	Y	Y	6	4
1032	M	21	-	Y	-	-	6	0^{+}	N	N	-	-
1033	F	21	350	Y	N	N	6	6	Y	Y	6	6
1034	F	19	352	N	N	N	5	5	Y	Y	6	6
1035	F	21	-	Y	-	-	5	5	Y	N	-	-
1036	F	20	350	Y	Y	Y	6	6	Y	Y	6	5
1037	M	20	-	N	-	-	6	6	Y	N	-	-
1038	M	22	350	N	N	N	6	6	Y	Y	6	6
1039	F	35	-	Y	-	-	5	4	Y	N	-	-
1040	F	20	356	Y	Y	N	6	6	Y	Y	7	7
1041	F	19	-	N	N	N	7	7	Y	Y	3	2
1042	F	19	351	Y	Y	Y	4	4	Y	Y	6	3
1043	F	19	-	Y	-	-	1	1	N	N	-	-
1044	F	18	362	Y	Y	Y	7	4	Y	Y	7	4
1045	F	21	-	N	N	N	6	4	Y	Y	3	2
1046	M	28	342	N	N	Y	4	4	Y	Y	6	4
1047	F	20	350	Y	Y	Y	6	6	Y	Y	7	7
1048	M	19	343	Y	Y	Y	6	6	Y	Y	6	3
1049	F	19	336	Y	Y	Y	6	6	Y	Y	6	6
1050	F	20	336	Y	Y	Y	5	4	Y	Y	6	6
1051	F	19	-	Y	Y	Y	5	5	Y	Y*	0	0
1052	F	18	377	Y	Y	N	6	6	Y	Y	7	6
1053	M	22	362	Y	Y	Y	6	4	Y	Y	6	5
1054	F	19	356	Y	Y	Y	6	6	Y	Y	7	7
1055	F	28	-	N	N	N	6	6	Y	Y	8	2^{+}
1056	F	18	355	Y	Y	Y	6	6	Y	Y	7	7

1057	F	18	355	Y	Y	N	6	6	Y	Y	7	7
1058	F	20	353	Y	Y	Y	6	6	Y	Y	7	7
1059	M	23	353	Y	Y	Y	5	5	Y	Y	6	4
1060	F	20	353	Y	Y	Y	6	6	Y	Y	7	7
1061	F	19	353	Y	Y	Y	7	7	Y	Y	7	7
1062	M	20	354	Y	Y	N	6	5	Y	Y	7	7
1063	F	18	355	Y	Y	Y	6	5	Y	Y	5	3
1064	F	19	353	Y	N	N	6	6	Y	Y	7	6
1065	F	25	354	Y	Y	Y	6	6	Y	Y	7	7
1066	F	25	349	N	Y	Y	6	3^{+}	Y	Y	6	6
1067	M	21	346	Y	Y	Y	6	6	Y	Y	7	6
1068	F	20	346	Y	Y	N	6	6	Y	Y	7	7
1069	F	23	352	Y	N	N	6	6	Y	Y	5	5
1070	F	18	338	N	N	N	8	5	Y	Y	7	7
1071	F	18	-	Y	-	-	7	7	Y	N	-	-
1072	F	24	340	Y	Y	N	7	7	Y	Y	7	4
1073	F	21	-	Y	-	-	6	6	Y	N	-	-
1074	F	18	339	Y	Y	Y	6	6	Y	Y	7	7

Note. Red block highlight indicates that the participant did not complete time one and were therefore not eligible to take part in time two. Orange block highlight indicates that the participant did not complete time two. Purple block highlight indicates a participant who appears to have 'forgotten' their self-harm history; they report self-harming at time one but not at time two. Blue block highlight indicates that the participant reports self-harming within the last year (at time two) but does not report a lifetime self-harm history at time two. Green block highlight indicates that the participant had not self-harmed at time one but reported a self-harm history at time two. *These participants completed the laboratory measures on the first day but made no daily diary

entries at time two. [+]Additional entries were made but the date marking on these entries make them invalid. They are therefore not included in the final data set. ID numbers block highlighted in grey are not included in the final sample of 57 participants.

Table 29. Self-harm thoughts and behaviours reported during the daily diary study period.

ID	Self-harm thoughts[a] (Y/N) T1	Self-harm (Y/N) T1	Self-harm thoughts[a] (Y/N) T2	Self-harm (Y/N) T2
1001	N	N	N	N
1002	N	N	N	N
1003	Y	Y	N	N
1004	Y	Y	-	-
1005	N	N	N	N
1006	N	N	Y	Y
1007	N	N	N	N
1008	Y	N	Y	N
1009	N	N	-	-
1010	N	N	N	N
1011	Y	Y	Y	Y
1012	N	N	N	N
1013	N	N	N	N
1014	N	N	-	-
1015	Y	Y	N	N
1016	N	N	N	N
1017	N	N	N	N
1018	N	N	-	-
1019	N	N	N	N
1020	N	N	N	N
1021	N	N	Y	Y
1022	Y	Y	Y	Y
1023	Y	N	Y	N
1024	N	N	-	-
1025	N	N	-	-
1026	N	N	N	N
1027	N	N	N	N
1028	N	N	Y	N
1029	N	N	N	N
1030	Y	N	Y	N
1031	N	N	N	N
1032	Y	Y	-	-
1033	Y	N	N	N
1034	N	N	N	N
1035	Y	N	-	-
1036	Y	Y	N	N
1037	N	N	-	-
1038	N	N	N	N
1039	N	N	-	-
1040	Y	N	Y	N
1041	N	N	N	N
1042	Y	N	Y	N
1043	N	Y	-	-

1044	Y	Y	Y	Y
1045	N	N	N	N
1046	N	N	Y	N
1047	Y	Y	Y	Y
1048	Y	Y	Y	Y
1049	Y	Y	Y	N
1050	Y	Y	Y	Y
1051	N	N	-	-
1052	Y	N	Y	N
1053	Y	N	Y	N
1054	Y	Y	Y	Y
1055	N	N	N	N
1056	Y	N	N	N
1057	N	N	Y	N
1058	Y	Y	Y	Y
1059	Y	N	N	N
1060	Y	N	Y	N
1061	Y	Y	Y	N
1062	Y	N	N	N
1063	N	N	Y	Y
1064	N	N	N	N
1065	Y	Y	Y	N
1066	Y	N	N	N
1067	Y	Y	Y	Y
1068	N	N	Y	N
1069	N	N	N	N
1070	N	N	N	N
1071	Y	Y	-	-
1072	Y	N	Y	N
1073	N	N	-	-
1074	N	N	Y	N

Note. [a] This was calculated from the thoughts item of the modified ABUSI, "How often have you thought about injuring yourself or about how you want to injure yourself?". Scores were dichotomised; any score greater than 1 ("Never") was coded as "thoughts, yes", while a score of 1 was coded as "thoughts, no". Grey block highlights indicate participants who did not adhere to the protocol across both time points and are therefore not included in the analysis.

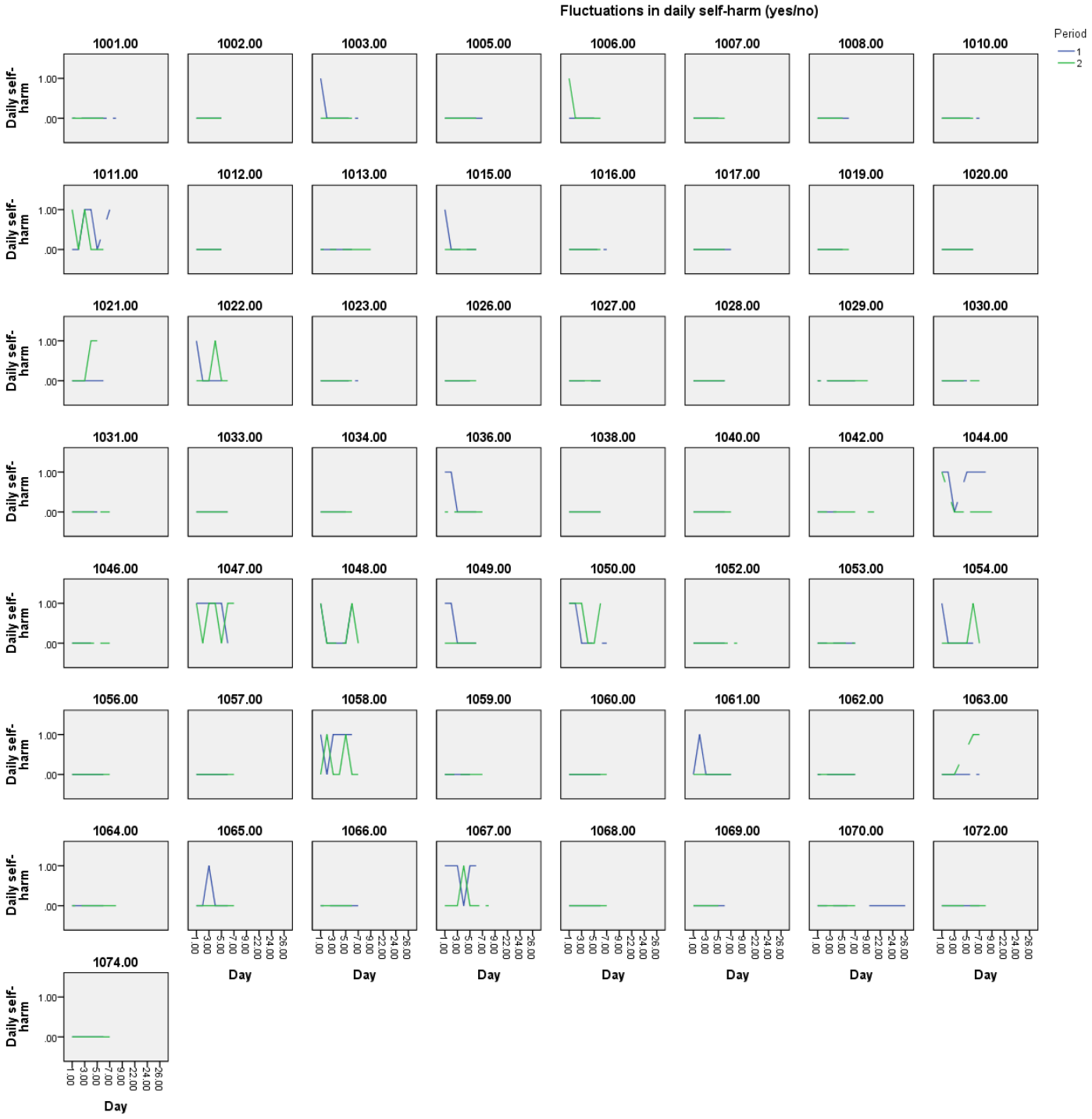


Figure 18. Fluctuations in daily self-harm ("yes"/ "no").

Note. Graphs for the 57 participants included in the final sample are presented. 1 indicates a day on which the participant self-harmed. On days where 0 is recorded, the participant did not report self-harming. Both study periods are

presented on each graph, with line colour differentiating time one and time two.

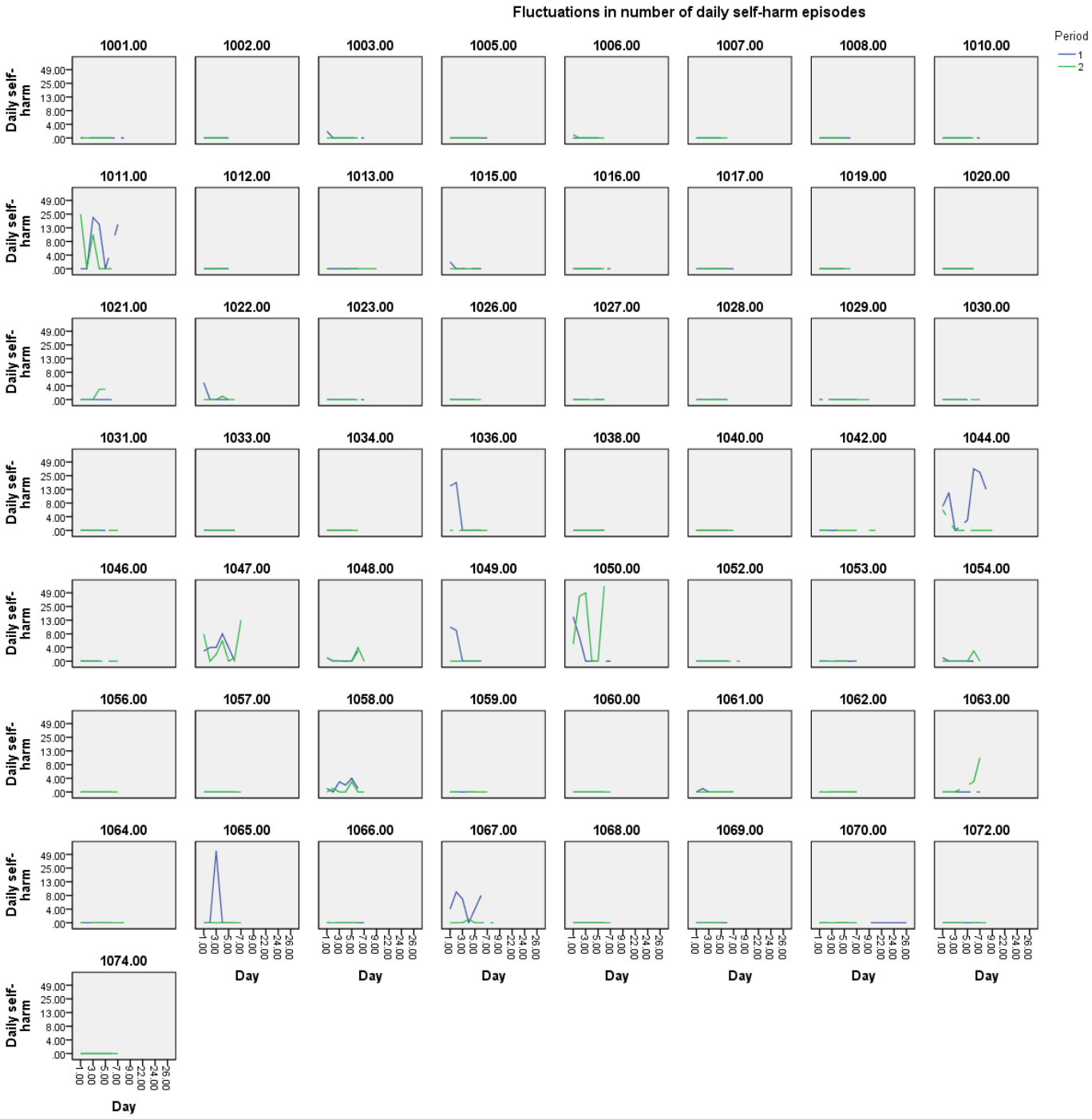


Figure 19. Fluctuations in number of daily self-harm episodes.

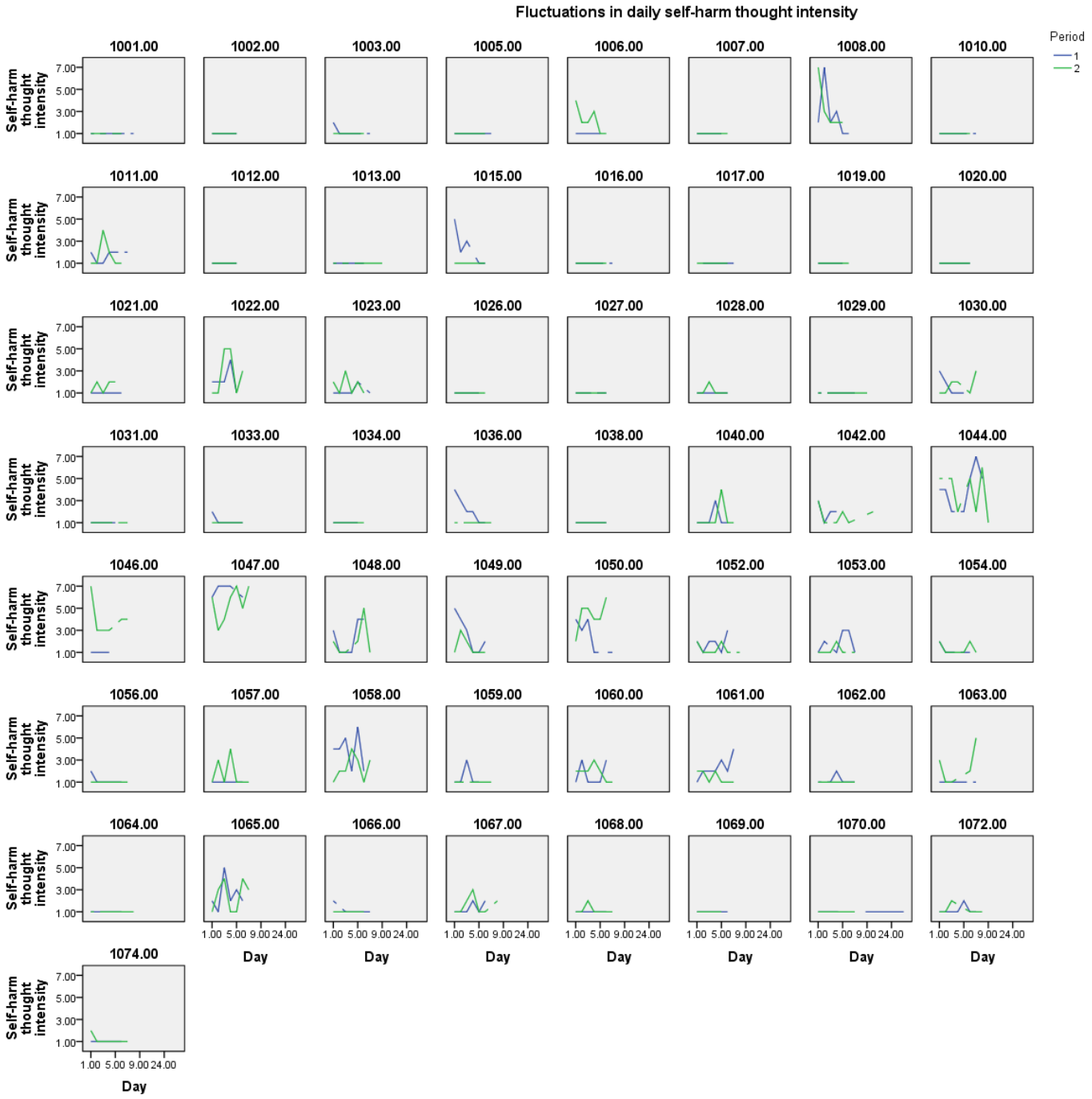


Figure 20. Fluctuations in daily self-harm thought intensity.

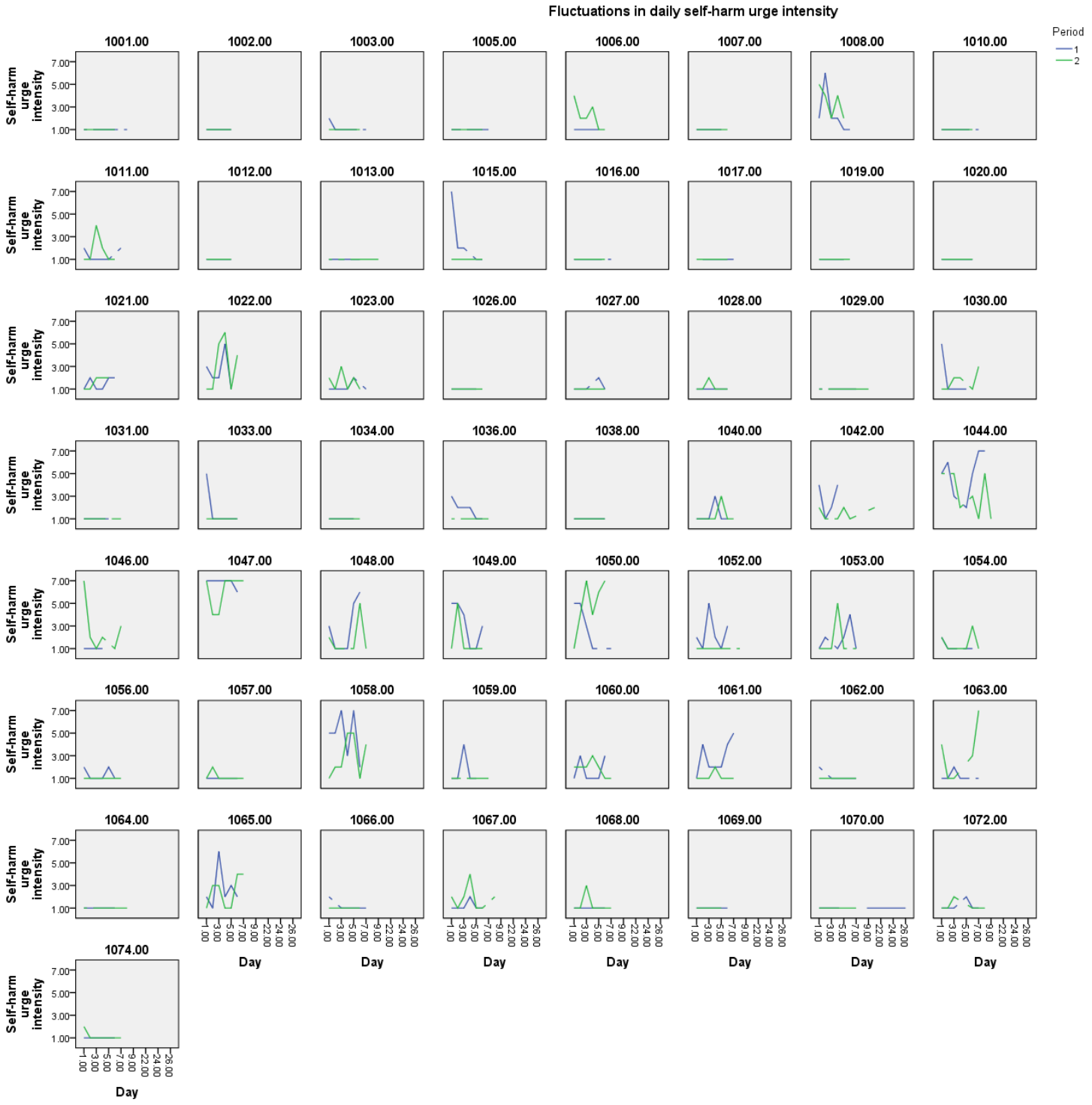


Figure 21. Fluctuations in daily self-harm urge intensity.

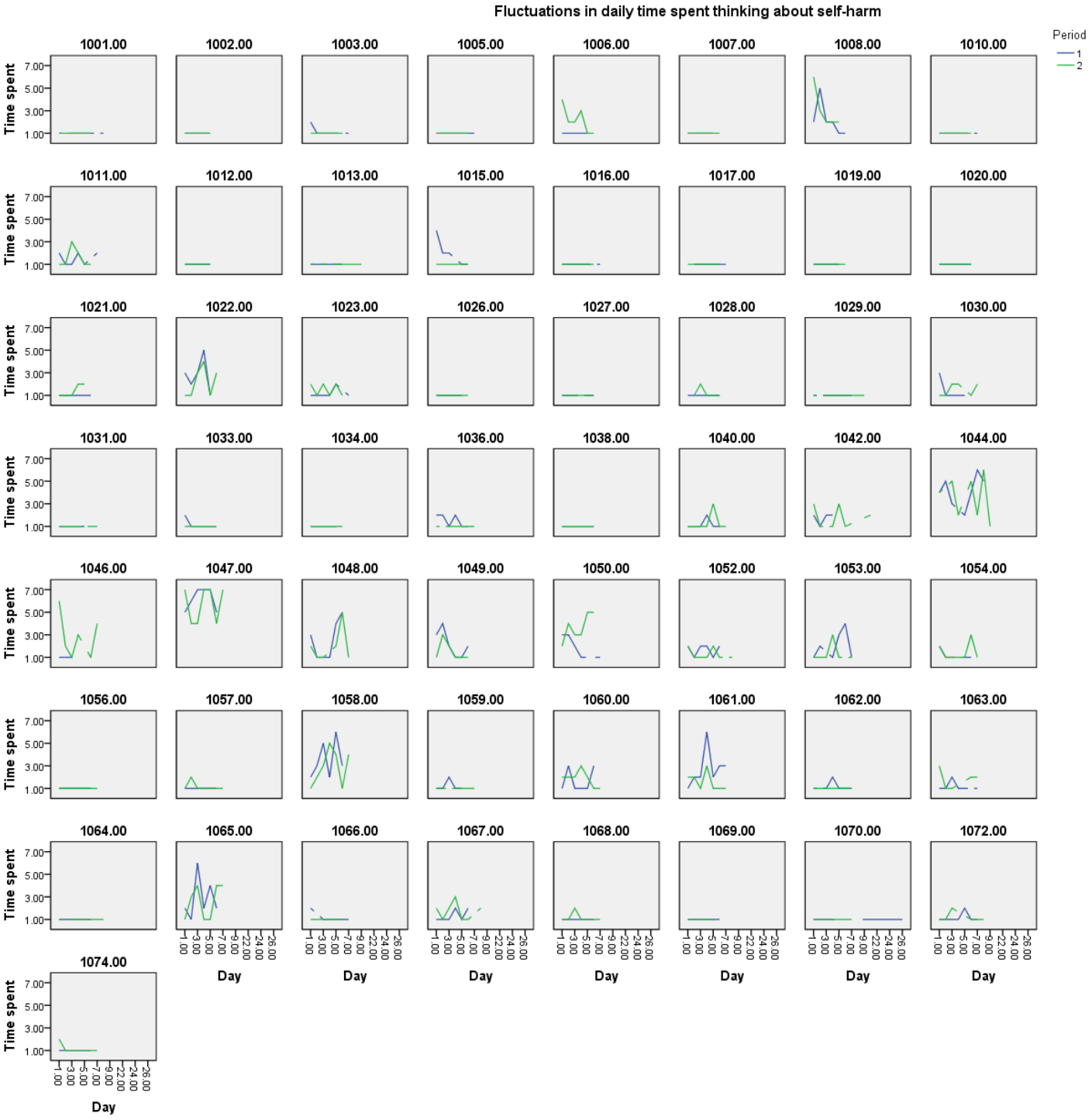


Figure 22. Fluctuations in daily time spent thinking about self-harm.

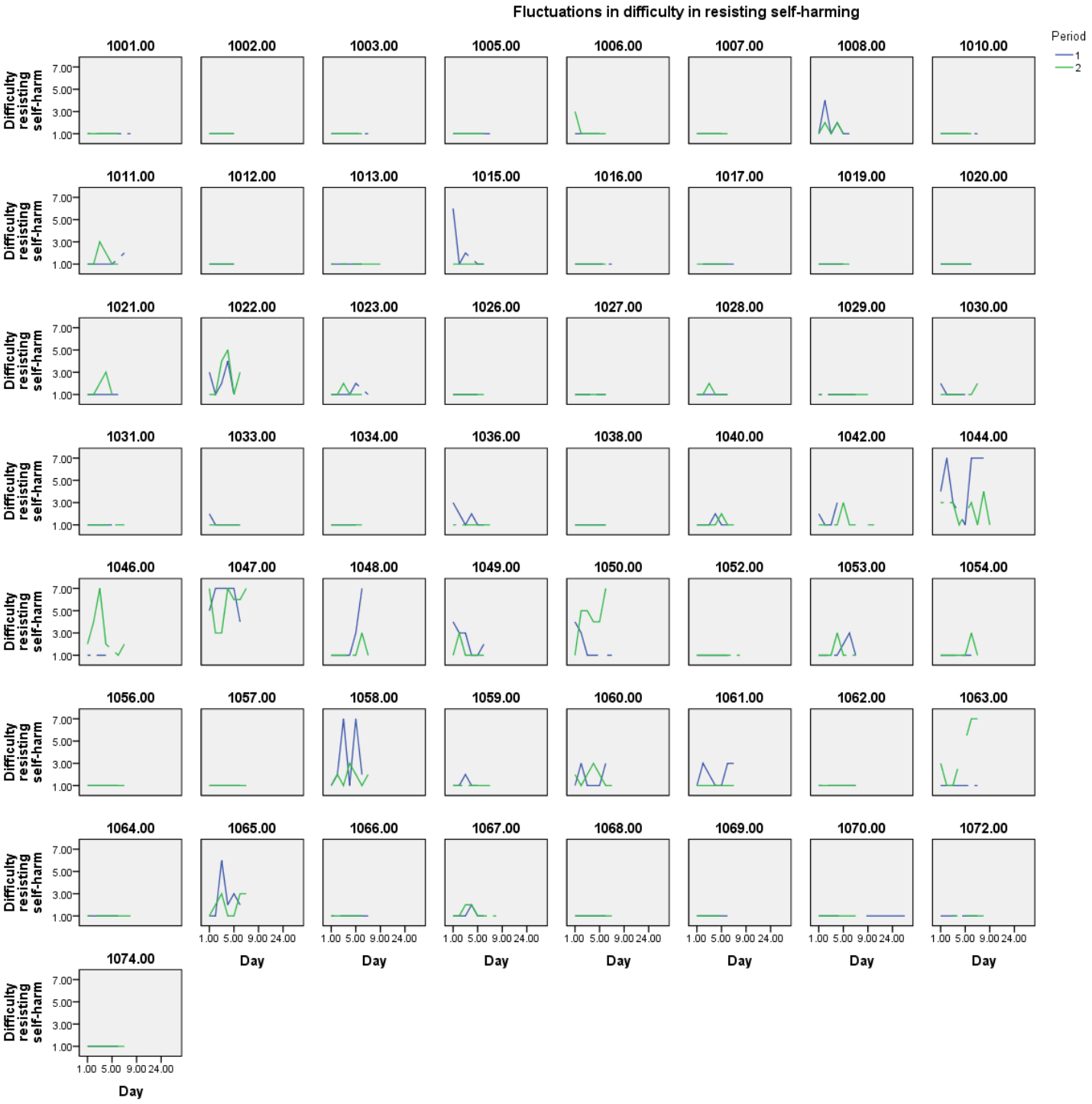


Figure 23. Fluctuations in difficulty resisting self-harming.

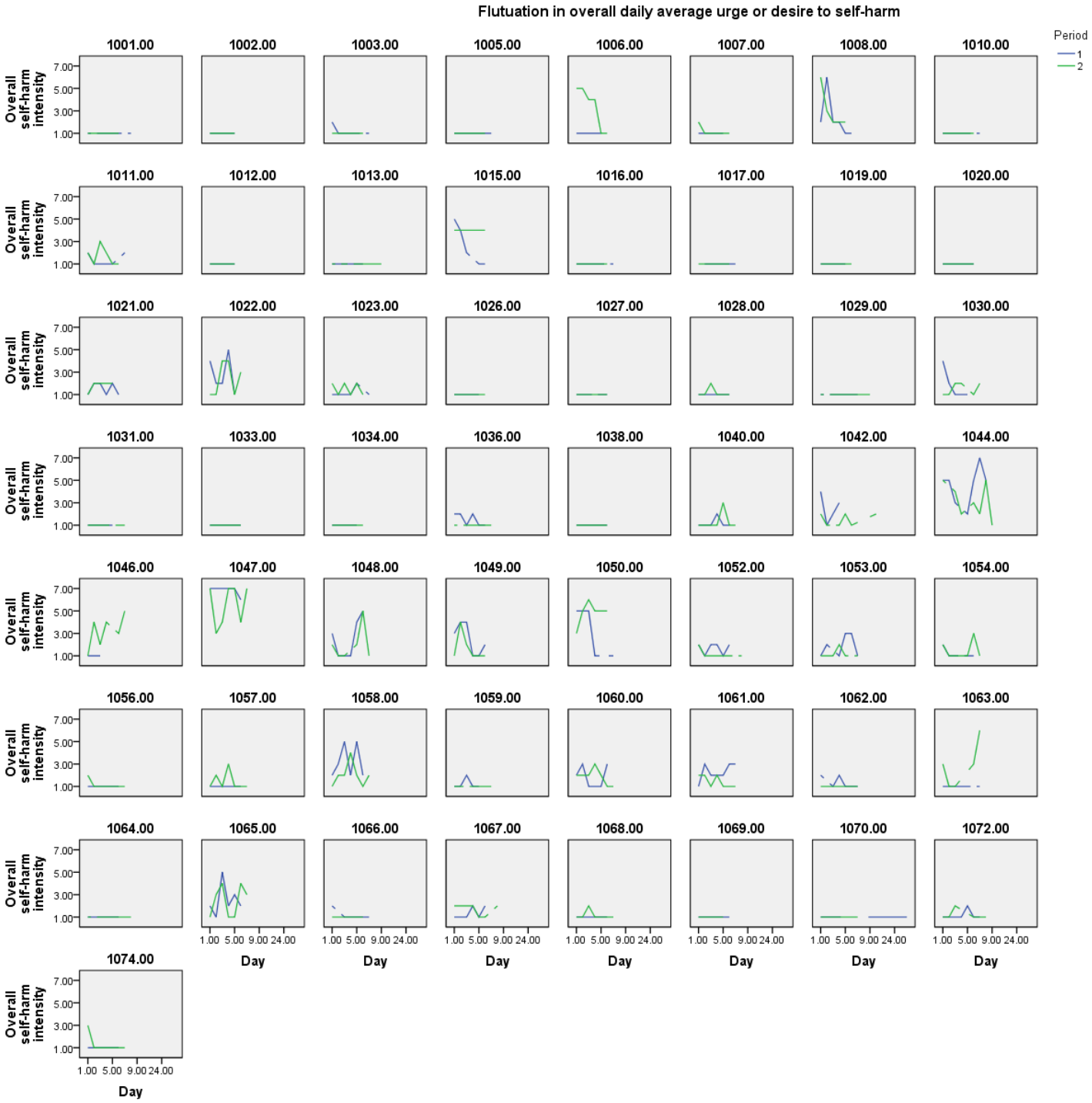


Figure 24. Fluctuations in overall daily average urge or desire to self-harm.

Appendix E: Complementary academic activities developed during the period of doctoral study

Alongside the empirical work presented within this thesis, and the academic presentations and publications outlined in pages 11-24, a number of complementary academic activities were engaged in during the period of doctoral study. The key activities are listed below:

Awards and Recognitions

2018 - **University of Nottingham Vice Chancellor's Medal** (nominated)
The University of Nottingham.
Nominated for contributions to the research community and a positive impact on students for the establishment of netECR.

2017 - **University of Nottingham Postgraduate Prize**
Dean Moore Research Scholarship (winner)
The University of Nottingham, University Tri Campus Postgraduate Prize.
Awarded for excellence in research, knowledge exchange, and contribution to the postgraduate community.

Publication Awards: Academic Articles

2020 - **Best publication following from doctoral research** (winner)
Institute of Mental Health (Nottingham) Publication Prizes 2019.

Wadman, R., **Nielsen, E.**, Brown, K.,[‡] Williams, A. J.,[‡] O'Raw, L., Sayal., K. & Townsend, E. (2019)."These things don't work". Young people's views on harm minimisation strategies as a proxy for self-harm: a mixed methods approach. *Archives of Suicide Research.* DOI:10.1080/13811118.2019.1624669

2017 - **Best publication following from doctoral research** (winner)
Institute of Mental Health (Nottingham) Publication Prize 2016.

Nielsen, E., Sayal, K. & Townsend, E. (2017). Dealing with difficult days: Functional coping dynamics in self-harm ideation and enactment. *Journal of Affective Disorders, 208*, 330-337. DOI:10.1016/j.jad.2016.08.036

Publication Awards: Public Engagement

2017 - **Blog post of the year** (winner)
Institute of Mental Health (Nottingham) blog.

Nielsen, E. (2017) "Me too": Mental health and disclosure as an Early Career Researcher. *Institute of Mental Health (IMH) Blog.*

2016 - **Blog post of the year** (winner)
Institute of Mental Health (Nottingham) blog.

Nielsen, E. (2016). Mind your 'C's and 'S's: The Language of Self-harm and Suicide (and why it matters). *Institute of Mental Health (IMH) Blog*.

2016 - **Blog post of the year** (runner up)
Institute of Mental Health (Nottingham) blog.

Nielsen, E.*(2016) Media Matters: The impact of media reporting of suicide. *Institute of Mental Health (IMH) Blog.*

*Co-authored with a survivor of suicide loss, who wished to remain anonymous.

Knowledge Exchange and Impact

2016 - **Knowledge Exchange & Impact Awards** (nominated)
The University of Nottingham, Digital Media Award.
Nominated for the Institute of Mental Health blog.

2016 - **Research Showcase** (finalist)
The University of Nottingham.
A knowledge exchange and public engagement series, showcasing postgraduate research.

Teaching Awards

2017 - **University Staff Oscars – Teaching: Most Inspiring** (nominated)
The University of Nottingham.
Nominated by MSci/MSc students for supervision of postgraduate research internships.

2016 - **University Staff Oscars - Best Research Supervisor** (nominated)
The University of Nottingham.
Nominated by MSci/MSc students for supervision of postgraduate research internships.

Presentation Prizes

2016 - **Presentation prize: Best oral presentation** (winner)
Institute of Health and Wellbeing conference, University of Glasgow.

Nielsen, E., Sayal, K. & Townsend, E. (2016). Experiential avoidance and functional coping dynamics predict the recency and frequency of self-harm. *The Institute of Health and Wellbeing annual conference*, University of Glasgow. 6th June 2016.

Publications Other

2017 - Padmanathan, P., **Nielsen, E.** & Knipe, D. (2017). From training to clinical practice: A call to end the use of the phrase 'commit* suicide'. *The British Journal of Psychiatry, 190* (1) 81. *DOI*: 10.1192/bjp.190.1.81a

2017 - **Nielsen, E.** (2017). Reaching beyond the ivory tower: Hints and tips for postgraduates starting out with public involvement or engagement work. *The Quarterly*, *105*, 35 – 38.

2016 - **Nielsen, E**. & Solder, K. (2015). The only way is clinical? *The Psychologist*, *28*, 1012-1015.

Research Grants

2019 - Project: <u>See What I'm Saying? Using creative mediums to open up conversations around self-harm, suicide and recovery.</u>

PI: **Emma Nielsen**; CI: Dr Donna Littlewood, Professor Ellen Townsend.

Funder: Jonathan's Voice (£500)

Working with steering group partners with lived experience of self-harm and/or suicidal thoughts and behaviours, we piloted a project using creative, visual mediums (e.g., drawing, collage, photography) to explore:

- What 'recovery' means to people who have experienced self-harmful and/or suicidal thoughts and/or behaviours, and those who support them.
- What keeps people safe from self-harm/suicidality (protective factors).

- The potential for using visual and non-verbal ways of expressing and exploring complex psychological dynamics.

This led to the co-curation of an online gallery: https://seewhatimsayingproject.weebly.com/gallery.html

2016 - Project: Dimensions of Self-harm and Suicidal Experiences (DoSSE)

PI: **Emma Nielsen**; CI: Dr Olivia Kirtley, Professor Ellen Townsend, Professor Rory O'Connor.

Funder: The British Psychological Society (BPS) Psychology Postgraduate Affairs Group (PsyPAG) Research Grant Bursary (£300)

We conducted an online study to explore the dimensions of self-harm and suicidal experiences – that is to say, the nature of experiences that both form ideation and those that appear along the transition from ideation to enactment. This study represents a first step in developing a more nuanced account of the key similarities and differences between experiences and trajectories from ideation to enactment.

Scientific Collaborative Projects

2020 - **International COVID-19 Suicide Prevention Research Collaboration** (ICSPRC)
Steering group member

2017 - **netECR**
Co-founder and Editor
www.netecr.wordpress.com; @netECR

Alongside Dr Tiago Zortea (University of Glasgow), Dr Donna Littlewood (University of Manchester), and Dr Kirsten Russell (University of Strathclyde), I co-founded the netECR network, an independent, international network of Early Career Researchers (ECRs) working in suicide and self-harm. This was developed out of an ECR Online Journal Club established by Dr Zortea and I in 2015. Through netECR, we aim to facilitate collaborations, networking, and mutual support for ECRs in the field of suicide and self-harm research. Collectively, the editorial team holds responsibility for the co-ordination and co-facilitation of meetings, the development and management of a library of resources, the development and management of an online presence, the elicitation and editing of blog content, networking with other organisations, and facilitating an environment which is conducive to horizontal mentorship and support. netECR is the first network of its kind in

the field of suicide and self-harm research, with over 70 members across five continents. The website has had over 35,000 visits.

2016-2017 - **Early Career Researcher Youth and Public engagement on Self-harm network** (ECR YaPS)
Co-founder and collaborative network lead

With Dr Ruth Wadman (University of York), A. Jess Williams (University of Birmingham), and Katherine Brown (University of Nottingham), I co-founded an ECR network focused on public engagement. As collaborative lead, I co-ordinated a schedule of activities to raise the profile of youth and public engagement activities and to share good practice. The network facilitated UK-wide collaborations, creating engagement opportunities.

Positions of Responsibility

2017 - **Pecha Kucha Research Showcase – Showcase Panellist**
Economic and Social Research Council Doctoral Training Program, University of Nottingham

2015-2016 - **Editor, Institute of Mental Health** (Nottingham) **blog**
https://imhblog.wordpress.com/

The IMH blog publishes articles which invite reflection, response, and discussion around topics related to mental health, wellbeing, and integrated healthcare. The blog aims to capture the variety of interests and expertise of the institute, with content from service users, carers, researchers and clinicians.

I led the editorial team including the management of blog timetabling, co-ordination of scheduling, as well as the elicitation of content. I supported contributors, working collaboratively to edit articles. I established a social media presence and promoted the blog within the University of Nottingham, Nottinghamshire NHS Foundation Trust and at conferences.

During my year as Editor we published 24 posts, viewed by over 12,000 visitors from 73 countries worldwide.

Public Engagement and Knowledge Exchange Activities

2019 - **Online gallery, See What I'm Saying?**
https://seewhatimsayingproject.weebly.com/gallery.html

As part of the See What I'm Saying? Project, we co-curated an online gallery exploring creative responses to emotions, recovery from self-harm and/or suicidal thoughts and behaviours and what keeps people safe and well.

2019 - **Contributor, netECR blog**

Nielsen, E., & Littlewood, D. (2019). See What I'm Saying? Using creative methods to open up conversations around self-harm, suicide and 'recovery'. *netECR blog.*

2019 - **Contributor, netECR blog**

Nielsen, E. (2019). What's okay to say? The acceptability of language used to talk about suicide. *netECR blog.*

2019 - **Speaker, Pint of Science**
Our Society: Emotion and Language

Nielsen, E. (2019). Everybody's Business: Understanding and responding to self-harm and suicidality.

2019 - **Panel member and discussant, Festival of Science and Curiosity**

I was a panel member and discussant following the performance of "Unkindest Cut", a touring dance and digital installation piece exploring experiences of mental health, with a focus on self-harm. The primary target audience of the piece was young people considered at risk of experiencing mental health problems, and their support networks. The panel discussion aimed to stimulate conversations around themes of mental health and self-harm, as well considering people's perceptions of self-harm and challenging common misconceptions.

2018 - **Contributor, netECR blog**

Littlewood, D., **Nielsen, E.**, Dale, H., Causer, H., Williams, A. J., & Russell-Grieg, K. (2018). All I want for Christmas is… *netECR blog.*

2018 - **Contributor, netECR blog**

Littlewood, D., & **Nielsen, E.** (2018). You can't pour from an empty cup: self-care suggestions for ECRs. *netECR blog.*

2017 - **Contributor, Institute of Mental Health blog**

Nielsen, E. (2017) "Me too": Mental health and disclosure as an Early Career Researcher. *Institute of Mental Health (IMH) Blog.*

2017 - **Café Connect**
Café Connect is an innovative scheme facilitating community engagement throughout the life cycle of research. This work is an extension of the Nottingham Research Café pilot event (August 2015).

I was involved in the development of materials for Café Connect, the day-to-day running of the event including contributing to supporting work to further develop the Card Sort Task for Self-Harm (CaTS), engaging in conversations around self-harm and suicide, and the running of the dissemination event "Café Connect: A Night of Findings".

2017 - **Contributor, The Power to Persuade** (Australia)

Nielsen, E. (2017). What's in a Word? The Language of Self-harm and Suicide (and why it matters). The Power to Persuade Blog (invited article).

2016 - **Contributor, Nottingham ESRC Doctoral Training blog**

Nielsen, E. (2016). LHR-BOS-LHR and the learning in between: Reflections on an OIV visiting fellowship. *Nottingham ESRC Doctoral Training Centre News.*

2016 - **Contributor, Institute of Mental Health blog**

Nielsen, E.*(2016) Media Matters: The impact of media reporting of suicide. *Institute of Mental Health (IMH) Blog.*

*Co-authored with a survivor of suicide loss, who wished to remain anonymous.

2016 - **Contributor, Institute of Mental Health blog**

Nielsen, E. (2016). Mind your 'C's and 'S's: The Language of Self-harm and Suicide (and why it matters). *Institute of Mental Health (IMH) Blog*.

2016 - **Contributor, PAPYRUS Prevention of Young Suicide**

Nielsen, E. (2016). The Language of Self-harm and Suicide - Do the words we use really matter? *PAPYRUS* (invited article).

2016 - **Contributor, Rethink Mental Illness blog**

Nielsen, E. (2016). Self-harm may be someone's coping response. It is not who they are. *Rethink Mental Illness Blog* (invited blog for Self-Injury Awareness Day).

2016 - **Research Showcase, University of Nottingham**
I presented doctoral research to members of the public and key stakeholders at the Graduate School's flagship engagement and knowledge exchange event.

2015 - **Nottingham Research Café**
Nottingham Research Café is an innovative scheme facilitating community engagement throughout the life cycle of research from PPI, to data collection, to demonstrations and dissemination talks.

I developed research materials and collected data within the Research Café. I was responsible for supporting and supervising undergraduate and graduate research interns, as well as sharing and discussing research findings with café participants.

2015 - **Mayfest**
Psychology Funfair

The Psychology Fun Fair engagement team aimed to provide Mayfest visitors with a taster of a broad range of topics studied within the School of Psychology – from visual neuroscience to social and developmental psychology – as well as providing an introduction to the brain and scientific, psychological experimentation. The fun-filled, hands-on activities aimed to promote curiosity and questioning, primarily with young people and their families.

2014 - **Brain Awareness Week, University of Nottingham**
How can we study self-harm and suicide in the lab?

I led the Self-Harm Research Group demonstration as part of Brain Awareness Week, demonstrating behavioural paradigms in clinical and health psychology to visiting sixth form students; fostered intellectual discussion and supported the development of critical evaluation skills.

2013 - **Brain Awareness Week, University of Nottingham**
Psychophysiological recording in clinical and health research.

I worked with the School of Psychology Brain Awareness Week Team to plan, organise, and deliver a series of psychophysiology workshops to engage sixth form students in scientific methods.

Conference Organisation

I have been involved in the organisation, management, preparation and/or delivery of the following conferences and symposiums:

2016 - ECRYaPS network symposium, Durham University (12th December).
2016 - Responding effectively to self-harm and suicidality, University of Nottingham (11th – 12th August).
2016 - The Institute of Mental Health Annual Research Day, University of Nottingham (10th May).

Teaching and Supervisory Experience

During my PhD I have completed the Associate Teacher Program (ATP).

Modules: Foundations of teaching in higher education; Understanding the principles of course design; Assessing and giving feedback; Contemporary issues in supervising research students; Making the most of discussion: small group teaching; Lecturing for learning.

Teaching

Undergraduate

2013-2016 - Postgraduate Teaching Assistant, University of Nottingham
BSc (Hons) Psychology; BSc (Hons) Psychology and Cognitive Neuroscience (undergraduate)

Practical and Statistical Methods (C81MPR; first year undergraduate)
Assisted in the delivery of undergraduate practical and statistical methods teaching (laboratory demonstrator), including instruction in PsychoPy and SPSS; provided feedback and grading of laboratory reports, as well as one-to-one and small group tuition.

- Developmental Psychology (C81DEV; first year undergraduate)
Essay marker.

- Biological Psychology (C81BIO; first year undergraduate)
Essay marker.

Postgraduate

2019 - Invited speaker, University of Nottingham
MSc Developmental Disorders (postgraduate)

Childhood Clinical and Behavioural Disorders (C84MCQ; postgraduate)
I delivered a session considering self-harm and suicide. The teaching covered risk assessment, formulation and management, evidence-

based intervention and co-production and adaptive clinical assessment.

Supervisory Experience

2019-2020 - Research Assistant, University of Nottingham
BSc (Hons) Psychology (undergraduate)

Third year undergraduate dissertations
Under the guidance of Prof. Ellen Townsend, I assisted in the co-supervision of final year undergraduate dissertation projects testing novel applications of adapted forms of the CaTS.

2015-2019 - Research Internship Supervisor, University of Nottingham

I supervised the research interns within the Self Harm Research Group. I was responsible for the selection and mentorship of honorary research assistants, internship planning, management, and logistical oversight. I have trained graduate and undergraduate students in the administration of behavioural tasks, aspects of data collection, data management, qualitative and quantitative data analysis, scientific writing, and the preparation of presentations and manuscripts. I co-ordinated research group meetings and facilitated the ECR Journal Club.

Invited Teaching Development

2019 - The University of Glasgow
MOOC: Understanding Suicide *and* Suicide *Prevention Strategies in a Global Context*

I was invited to contribute a section on "The Language of Self-Harm and Suicide" to the MOOC.

Journal Reviewer (ad hoc)

Journal of Consulting and Clinical Psychology; Mental Health & Prevention; Clinical Psychology and Psychotherapy; Behaviour Research and Therapy; SAGE Open; Behavior Therapy; Journal of Autism and Developmental Disorders; Archives of Suicide Research.

Grant Reviewer

2018 - **Autistica**
Charles Sharland Grant Scheme for Autistic Researchers

2017 - **Autistica**
Mental Health and Autism call

Invited Reviewer – Guidance Development

2020 - **National Health Service** (NHS), *Self-harm online information.*

2014 - **Connecting With People**, *Staying safe when you're not sure life is worth living.*

2014 - **Connecting With People**, *How to make a safety plan.*

Invited Reviewer – External Reviewer

2018 - Project: How can family involvement in inpatient and crisis care contribute to reduce risk of suicidal behaviour?

PI: Professor Nav Kapur; CI: Dr Donna Littlewood, Dr Leah Quinlivan, Professor Roger Webb, Dr Caroline Saunders.

NIHR Greater Manchester Patient Safety Translational Research Centre (PSTRC), University of Manchester.

2018 - Project: Evaluation of the involvement of public contributors in developing and conducting self-harm and suicide research.

Co-PI: Dr Donna Littlewood, Dr Leah Quinlivan; CI: Dr Sarah Steeg, Cathryn Rodway, Harriet Bickley, Professor Roger Webb, Professor Nav Kapur.

NIHR Greater Manchester Patient Safety Translational Research Centre (PSTRC), University of Manchester.

Invited Consultation

2019 - **University of Nottingham Suicide Safer Task and Finish Group**

2018-2019 - **DELPHI Consultation: Suicide and ICT**
The Centre for Research and Intervention on Suicide, Ethical Issues and End of Life Practices (CRISE), The University of Quebec (Montreal, Canada)

2019 - **Autistica Action Briefing: Suicide Prevention**
Consultant and co-author on a policy action briefing aimed at Department of Health and Social Care, NHS policy-makers, NICE, commissioners, services, and public research funders:

Harper, G., Smith, E., Cassidy, S., Cooke, K., Adams, S., **Nielsen, E.**, & Davidson, I. (2019.) Autistic Action Briefing: Suicide Prevention. Autistica. London, UK.

Appendix F: Additional publications arising from doctoral work

https://econtent.hogrefe.com/doi/pdf/10.1027/0227-5910/a000731 - Saturday, November 21, 2020 4:08:42 AM - IP Address:86.146.220.198

Editorial

Suicide Research, Prevention, and COVID-19

Towards a Global Response and the Establishment of an International Research Collaboration

Thomas Niederkrotenthaler[1], David Gunnell[2], Ella Arensman[3], Jane Pirkis[4], Louis Appleby[5], Keith Hawton[6], Ann John[7], Nav Kapur[8], Murad Khan[9], Rory C. O'Connor[10], Steve Platt[11], and the International COVID-19 Suicide Prevention Research Collaboration

[1]Unit Suicide Research and Mental Health Promotion, Department of Social and Preventive Medicine, Centre for Public Health, Medical University of Vienna, Austria
[2]National Institute of Health Research Biomedical Research Centre, University Hospitals Bristol NHS Foundation Trust and the University of Bristol, UK
[3]School of Public Health and National Suicide Research Foundation, College of Medicine and Health, University College Cork, Republic of Ireland
[4]Melbourne School of Population and Global Health, University of Melbourne, VIC, Australia
[5]Centre for Mental Health & Safety, The University of Manchester, UK
[6]Centre for Suicide Research, Department of Psychiatry, Warneford Hospital, University of Oxford, UK
[7]Population Psychiatry, Suicide and Informatics, Medical School, Swansea University, UK
[8]Centre for Mental Health and Safety & Greater Manchester NIHR Patient Safety Translational Research Centre, University of Manchester and Greater Manchester Mental Health NHS Foundation Trust, Manchester, UK
[9]Department of Psychiatry, Aga Khan University, Karachi, Pakistan
[10]Suicidal Behaviour Research Laboratory, Institute of Health & Wellbeing, University of Glasgow, UK
[11]Usher Institute, College of Medicine and Veterinary Medicine, University of Edinburgh, UK

The COVID-19 pandemic of 2020 is a major global health challenge. At the time of writing, over 11.6 million people around the world had been registered as infected and 538,000 had died (Worldometers, 2020, accessed July 7, 2020). Public health responses to COVID-19 need to balance direct efforts to control the disease and its impact on health systems, infected people, and their families with the impacts from associated mitigating interventions. Such impacts include social isolation, school closure, health service disruption stemming from reconfiguring health systems, and diminished economic activity. The primary focus of both the United Nations (UN) and the World Health Organization (WHO) has been on addressing COVID-19 as a physical health crisis, but the need to strengthen mental health action, including suicide prevention, is increasingly recognized, as is the need for mental health research to be an integral part of the recovery plan (UN, 2020a). The impacts of the pandemic on physical and mental health will unfold differently over time and will vary depending on the duration and fluctuating intensity of the disease. Research is needed to help ensure that decision-making regarding all aspects of health, including mental health (Holmes et al., 2020), is informed by the best quality data at each stage of the pandemic.

The pandemic poses a prolonged and unique challenge to public mental health, with major implications for suicide and suicide prevention (Gunnell et al., 2020; Reger, Stanley, & Joiner, 2020). A rise in suicide deaths in the wake of the pandemic is not inevitable. There is consensus, however, that the mitigation of risk will be contingent upon a proactive and effective response involving collaborative work between the state, NGOs, academia, and local governments and coordinated leadership across government ministries, including health, education, security, social services, welfare, and finance. Countries have responded in different ways to the pandemic, effectively creating a series of natural experiments. Thus, regions of the world affected later in the pandemic can draw on lessons from countries, such as China and Italy, affected in its early phase. Likewise, lessons learned early in the pandemic (e.g., on the impact of lockdown and physical distancing

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measures) can be used to inform responses to any future surges in the incidence of COVID-19.

Although there are important parallels between countries in the course of the pandemic, some stressors, responses, and priorities are likely to differ between high- and low–middle-income countries and between cultures and regions. As COVID-19 appears to be disproportionately affecting Black, Asian, and minority ethnic communities, the response – and suicide prevention research carried out to inform the response – needs to be sufficiently granular and account for the complexity of risks in these groups (O'Connor et al., 2020).

Throughout this editorial, when we refer to *suicide* and *suicidal behavior*, we mean to include both fatal and nonfatal suicidal behaviors and self-harm.

The Need for Evidence-Based Suicide Prevention Responses

Suicide is the most extreme outcome of a mental health crisis and should therefore be a key priority in any broader mental health response to the pandemic (Gunnell et al., 2020; Reger et al., 2020). Suicide prevention responses need to be informed by research that is as specific as possible to the current situation and takes account of the many mechanisms that have an impact on suicide, as they may vary during the different phases of the pandemic. At the same time, given the risks involved, strategic development of policy and implementation responses cannot wait until all aspects of the epidemiology and consequences of the disease on mental health and risk of suicide are understood.

The dilemma here is that few studies have investigated the impact of previous pandemics – or even epidemics – on suicide (Cheung, Chau, & Yip, 2008; Wasserman, 1992; Zortea et al., 2020), and none has evaluated suicide prevention measures in the current context. An analysis of the impact of the Spanish Flu epidemic (1918–1920) in the United States indicated that it resulted in a small rise in suicides (Wasserman, 1992). Cheung and colleagues (2008) reported a rise in suicide among older people during the 2003 SARS epidemic in Hong Kong. Similarly, what can be learned from other types of public health emergencies is limited. Much of the related research comes from one-off events, such as terrorist attacks and natural disasters (e.g., earthquakes). Findings from such events might not be applicable to the current situation (Devitt, 2020).

Early Research Findings Relevant to Assessing the Impact of COVID-19 on Mental Health

Early publications relevant to the COVID-19 response have largely come from literature reviews, small selective surveys or case reports, often using indirect measures of suicide risk or from modeling approaches to predict the impact of the pandemic. These have addressed issues such as the impact of quarantine (Brooks et al, 2020), highlighted possible high-risk groups (Yao, Chen, & Xu, 2020), and assessed mental health service disruption (Royal College of Psychiatrists, 2020).

Physical distancing and related measures, which have been at the forefront of the public health response, carry a strong risk of increasing isolation, particularly in vulnerable populations such as older people and people who have been bereaved (Brooks et al., 2020; De Leo & Trabucchi, 2020; Wand, Zhong, Chiu, Draper, & De Leo, 2020; Yip & Chau, 2020). Physical distancing measures may also lead to increases in household stress levels, domestic violence, and alcohol misuse and affect the accessibility of mental health services (Brooks et al., 2020; Reger et al., 2020). The stresses of lockdown may be worse in low- and middle-income countries where extended families tend to live together with limited housing space.

Concerns have been expressed about increases in demand for psychiatric emergency care (Royal College of Psychiatrists, 2020). In the context of overwhelmed health-care systems and shortages of resources to treat people with COVID-19 in healthcare settings, qualitative findings from China indicate that the intensity of work during the pandemic drained health-care workers physically and emotionally (Liu et al., 2020). In the United Kingdom, the British Medical Association well-being support services have seen a 40% increase in use after the onset of the pandemic (Torjesen, 2020).

Positive effects of the pandemic on the public, such as increased prosocial behavior (e.g., donating and volunteering) and the strengthening of community ties, may help to mitigate detrimental impacts of physical distancing (Van Bavel et al., 2020). The move of some health and third-sector services into online settings may also have long-lasting benefits in improving service accessibility, particularly to those who find face-to-face consultation difficult. The effect on people with mental illness of replacing face-to-face treatment with remote delivery of care, however, remains unclear. Moreover, in low- and middle-income countries the technology to support remote assessment is limited (De Sousa, Mohandas, & Javed, 2020; UN, 2020a). In these, and other settings, where there is limited

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access to specialist mental health services, community and peer support becomes extremely important.

The potential for the COVID-19 virus to affect the brain and to cause long-lasting physical morbidity means it might become relevant as a risk factor for mental illness and suicide in the future (Holmes et al., 2020; Rogers et al., 2020; Wu et al. 2020). Review findings indicate that the incidence of psychosis, a major risk factor for suicide and suicidal behavior, appeared to be high in people following SARS, MERS, and H1N1 infection (Rogers et al., 2020). Given emerging evidence that the virus can have severe effects on different organ systems including kidney and liver function (Zhang, Shi, & Wang, 2020), the physical consequences of infections might include a prolonged reduction in functional capacity and disability in some patients, all of which might have potential implications for suicide risk and prevention.

However, longer-term risks for suicide are likely most closely related to the economic consequences of the pandemic, including financial strain and unemployment. In a study based on suicide data from 54 countries, the recession of 2008 was associated with a 3.3% increase in suicides in men (but not women) in the following year and more prolonged increases in several countries (Chang, Stuckler, Yip, & Gunnell, 2013). The increase varied depending on the regional depth of the recession and the specifics of the social insurance systems (e.g., regulations for unemployment benefits or payed sick leave; Chang et al., 2013; Norström & Grönqvist, 2015). The economic downturn associated with the COVID-19 pandemic may be more rapid in onset than the 2008 recession and may push an estimated 500 million people, particularly in low- and middle-income countries, below the poverty line (UN, 2020b).

Early Research Findings Relevant to Assessing the Impact of COVID-19 on Suicide and Suicidal Behavior

There is, as yet, no direct evidence of the impact of the pandemic on suicidal behavior. While a number of news stories from Japan, New Zealand, and Germany report a decrease in suicides in the period around the time of lockdown (Deutsche Welle, 2020; New Zealand Herald, 2020; The Guardian, 2020), these are all based on preliminary data/anecdotal reports and unsubstantiated by peer-reviewed publications. General population survey findings from the United Kingdom have shown no clear evidence of a rise in reported self-harm during the weeks following lockdown (after March 23), but no pre-lockdown data are available (Fancourt, Bu, Mak, & Steptoe, 2020). Many surveys have been carried out in the wake of the pandemic, these often use convenience samples, which are prone to selection bias (Pierce et al., 2020). In addition, there have been multiple case reports from some low- and middle-income countries highlighting occurrences of suicide thought to be related to COVID-19 (De Sousa et al., 2020; Mamun & Ullah, 2020). These reports must, however, be interpreted with great caution – and even more so when they are based on mass media reports, which are unlikely to have been validated.

Some researchers have attempted to model the possible pandemic-associated increase in suicides, largely based on predicted rises in unemployment (Kawohl & Nordt, 2020; McIntyre & Lee, 2020; Moser, Glaus, Frangou, & Schechter, 2020). Risk estimates vary widely, from a 1% increase in global suicides (Kawohl & Nordt, 2020) to a doubling of national suicides in a Swiss study, using prison incarceration as a questionable proxy for modeling the social distancing effects of lockdown (Moser et al., 2020). These discrepancies are partly due to differences in modeling assumptions, which are associated with considerable uncertainty and may be very misleading. Given the uncertainty of the baseline assumptions about how events will unfold, the results of these tentative projections can at best provide a guide as to where action should be directed but are largely unhelpful for accurate quantifications of future suicidal behavior and suicide.

In this regard, access to real-time suicide mortality data is a key priority (Gunnell et al., 2020). Further, active surveillance systems for suicide attempts are warranted (WHO, 2016).

In the absence of direct evidence about trends in suicide, some researchers have used search behavior on Google Trends for terms related to suicide, as a proxy for suicide risk (Knipe, Evans, Marchant, Gunnell, & John, 2020; Sinyor, Spittal, & Niederkrotenthaler, 2020). Their findings indicate that, although relative search volumes for financial and work-related concerns have increased (Knipe et al., 2020), searches for suicide and suicide methods have not (Knipe et al, 2020; Sinyor et al., 2020). The potential limitations of Google search data for surveillance are well recognized and include uncertainty about the algorithms used and issues with the stability of findings provided by Google Trends, as well of inconsistent associations with suicide (Tran et al., 2017).

Gaps in knowledge about the epidemiology of suicide and suicidal behavior during COVID-19 and the effectiveness of intervention and prevention measures underline the need for a strategic approach to suicide research and prevention at a global level. The uncertainties regarding the direct and indirect effects of COVID-19 on suicide can only be addressed with good-quality tailored research.

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Furthermore, suicide prevention in the age of COVID-19 needs to build on what we know about the effectiveness of various measures, but also needs to take account of the unique challenges posed by the situation in order to develop novel approaches. Our knowledge is currently still very limited and building the evidence base on suicide prevention is crucial.

Research Considerations During COVID-19

There are several considerations in relation to suicide prevention research carried out during crisis situations and in the present global pandemic (Table 1). These include ensuring the safety of research participants and researchers as well as the need for research to focus on low- and middle-income settings as well as high-income countries, keeping in mind that findings from one setting may not generalize to another. We expand on a few specific issues in the following section. First, the limited research conducted thus far on suicide and its prevention during COVID-19 has focused mostly on high-income countries. While complementary research in this area in low- and middle-income countries should be prioritized, the poor quality of routine mortality and hospital attendance data as well as the limited availability of resources to carry out research in many of these settings present very real challenges. In 2014 the WHO considered that only just over one third of member states had good-quality suicide registration data, and such data were largely absent in low- and middle-income countries (WHO, 2014). The establishment of sentinel sites to gather as accurate data on suicidal behavior as possible to supplement those that already exist would be one way forward (WHO, 2016).

Second, as a result of the pandemic, mental health services have had to develop new ways of working to deliver care to suicidal individuals, including new care pathways, the mass roll-out of remote consultation, and increased use of digital interventions. These new ways of working require real-time evaluation and ongoing adaptation in response to findings. Traditional evaluation approaches, such as randomized trials, may need to be adapted in a manner that is still consistent with making robust inferences about their effectiveness.

Third, with school and university closures in place in a number of countries, the traditional setting for carrying out research into children and young people's health is no longer available. Given current concerns about the impact of the pandemic on young people, mental health researchers will need to find alternative routes to studying the impact of the pandemic on this potentially vulnerable group.

Fourth, for all studies it is vital that those with lived experience of suicide are involved in shaping the research at all stages – from developing the research questions to data

Table 1. Considerations for suicide and suicidal behavior research during the COVID-19 pandemic

Research considerations
The COVID-19 suicide research response should be truly multidisciplinary. This will foster research that addresses the different aspects and layers of risk and resilience relating to the health consequences of COVID-19, including suicide and suicidal behavior. It will also foster research that informs prevention efforts by taking a range of perspectives.
People with lived experience of suicide should be involved at all stages of the research process.
Researchers should ensure that key risk groups that are often under-represented in suicide research are represented appropriately in studies.
The safety and well-being of participants should remain at the forefront of research design considerations.
Researchers' safety must not be compromised if they are carrying out field work in situations where they may be at increased risk of infection.
Researchers should embrace Open Science research practices, such as registering research questions in advance and sharing data, wherever possible.
To ensure research findings inform practice, researchers should consider the potential real-world impact of their studies during the design phase and develop a clear, a priori dissemination strategy.
Research findings, particularly those making bold statements about risk or about effective treatments, should be peer reviewed prior to dissemination. If researchers decide that early dissemination is warranted, outputs should clearly state the preliminary status of the research and that it is yet to be peer reviewed. In this case, conclusions should be stated cautiously, in a manner that is consistent with the preliminary nature of findings.
When talking about research findings with the media, researchers should remain vigilant about not increasing risk for people who are already vulnerable. They should take care not to contribute to sensationalist headlines, should not make monocausal attributions of suicide to COVID-19, and should not use stigmatizing language (e.g., *COVID-19 suicides*). Researchers should recommend that media professionals use COVID-19-specific media reporting guidelines (see IASP, 2020b).
Research teams should be supported, particularly because some team members will be working in difficult home circumstances and many will be personally affected by concerns about the pandemic and its consequences.

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collection and dissemination of the findings. Fifth, all research needs to comply with ethical standards. Researchers who do not normally work in the area of mental health and suicide prevention but who are now shaping conversations on suicide prevention need to obtain necessary training and background information on how to conduct suicide research, including the need to follow established research protocols and safety considerations that are specific to the field (Townsend, Nielsen, Allister, & Cassidy, 2020). Sixth, it is important that research resources (i.e., staff, funding) are rapidly mobilized to ensure timely research evidence is available. However, this presents tensions between the time researchers have available to write robust funding applications, time-scales for the grant review by funding bodies, and, if funded, the availability of high-quality fieldworkers and analysts as these are likely to be already committed to other projects. Flexibility and clear communication with funders about project delays and re-allocation of resources should help ameliorate these challenges. There is a distinct possibility that research funding may be adversely affected by a post-pandemic recession. Seventh, any proposed research should have a clear pathway to impact to ensure that clinicians and policy-makers can implement the findings of research in their work.

Lastly, traditional models of research publication, with the need for peer review, introduce delays between article submission and on-line publication, reducing the speed with which evidence is disseminated and recommendations implemented. One solution is the fast-track review processes for selected papers – these were already in place before COVID-19, but have been extended and adopted by more journals since the beginning of the outbreak. Another solution is open science publication models that involve on-line publication of articles while they await peer review, although there is a danger of low-quality research findings being disseminated and acted upon precipitously, without scrutiny of their validity (Armstrong, 2020). In order to mitigate this risk, researchers need to label their findings as preliminary and implement a communications strategy that addresses the preliminary nature of findings.

The International COVID-19 Suicide Prevention Research Collaboration

High-quality timely research to understand the suicide-related consequences of COVID-19 and to determine how best to mitigate the risk stemming from these consequences is now needed. The UN highlights the need for "rapid knowledge acquisition," establishing research priorities, coordinating research efforts, open-data sharing, and funding (UN, 2020a). In response to widespread concerns about the impact of the COVID-19 pandemic on suicide and suicidal behavior, a group, initially consisting of 44 suicide prevention researchers and leaders of suicide prevention charities from around 20 countries, came together to pool their expertise about the likely impact of the pandemic on suicidal behavior and to identify prevention priorities. The International COVID-19 Suicide Prevention Research Collaboration (ICSPRC) sought to include at least one representative from many of the most affected countries and also representation from high-, middle-, and low-income countries (https://www.iasp.info/COVID-19_suicide_research.php). The ICSPRC assessment of the risks posed by the pandemic and suggested responses to mitigate these were summarized in a *Lancet Psychiatry* commentary published in April 2020 (Gunnell et al., 2020).

Building on this initiative, the collaborative network has been extended to include suicide researchers from a wider range of countries (including countries in Africa, the Middle East, and South America), with skills ranging from population health to biological psychiatry and incorporating expertise in quantitative and qualitative methods, together with ethics. The objectives of the group are to:

a) Share early findings (and, where appropriate, data) on the impact of the pandemic, and the public health measures (e.g., physical distancing) to contain its spread, on suicidal behavior in participants' countries and to provide timely policy advice to those in other countries.
b) Facilitate collaboration/avoid duplication through sharing information about ongoing research studies and COVID-19 research tools/questionnaires focused on suicide prevention, as well as advice about study design.
c) Harmonize data collection approaches to facilitate pooling of data, where possible, from different settings and contexts.

An early example of the success of this approach has been the collaboration between two groups working on almost identical systematic reviews investigating the impact of pandemics/epidemics on suicide, self-harm, and suicidal ideation (Zortea et al., 2020). Another group has established real-time surveillance of the emerging literature on COVID-19 and suicide to become a "living review" (John et al., 2020). The global distribution of group members will facilitate rapid combined efforts in response to funding opportunities, where cross-national studies would strengthen the evidence base.

Conducting high quality suicide prevention research is challenging. Suicide, in population terms, is a low-incidence event and thus studies are often under-powered to identify small but potentially important effects. Furthermore, a focus on intermediate or proxy outcomes (e.g., self-reported suicidal ideation) is sometimes necessary but these have a questionable relationship to suicidal behav-

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Table 2. Example research questions relating to whether rates of suicide and/or suicidal behavior increase as a result of the pandemic and what mechanisms may be driving any increase

General population	
Variations across time, place, and person	
Time	What is the impact of the pandemic on suicide and suicidal behavior and does risk differ over its course and in its aftermath?
Place	Are there underlying country- or region-level differences that may explain differing changes in rates of suicide and suicidal behavior? For example, do the background rates of suicide and suicidal behavior seem to have a bearing on any increases? What about the number of COVID-19 cases and deaths, the capacity of the health-care system, and the pandemic response? Are any observed relationships the same for low- and middle-income countries as they are for high-income countries?
Person	Does any change in the incidence of suicide and suicidal behavior vary by population subgroup? For example, is there variation by demographic factors (e.g., age, gender, ethnicity, religious affiliation), household structure (e.g., living alone, living with children, living with joint/extended families), socioeconomic factors (e.g., socioeconomic status, job loss, financial strain, debt, access to resources, occupation)?
Risk, protective, and new individual-level factors	
Risk factors	Are there recognized risk factors for suicide and suicidal behavior that are heightened during the pandemic that might explain any increases? For example, how do any changes in suicide and suicidal behavior relate to changes in levels of anxiety, depression, alcohol use, or feelings of entrapment that might be increased by isolation, loneliness, uncertainty, domestic violence, economic hardship, and reduced social participation?
Protective factors	Are there recognized protective factors for suicide and suicidal behavior that might be bolstered during the pandemic and potentially keep rates of suicide and suicidal behavior from increasing? For example, if communities rally around and provide support for those who might be vulnerable, does this have a positive impact?
New factors	Are there new risk or protective factors for suicide and suicidal behavior that correspond to the emergence of the pandemic? Are there risk or protective factors that have been exacerbated or changed in importance? For example, has face-to-face and online racism against Asian people during the pandemic led to an increase in their risk of suicidal behavior?
Population-level factors	
Access to the means	Have changes in access to the means of suicide resulted in changes to methods used and affected rates of suicide and suicidal behavior? For example, has suicide by firearms, pesticides, and medications increased as a result of people stockpiling these? Have rail suicides decreased due to travel restrictions?
Media reporting	How does the media report on COVID-19 and on COVID-19-related suicides, and what is the impact of this reporting on suicide and suicidal behavior? For example, are suicide-related narratives different compared with pre-COVID-19?
Social media use and other online activity	Have patterns of social media usage/consumption and other online activity changed during the pandemic, and, if so, is this associated with suicidal behavior? For example, does repeated exposure to information about the pandemic heighten fear and increase the risk of suicide and suicidal behavior? Or does the connectedness afforded by digital technologies counter the isolation effects of physical distancing?
Ways we live and behave	Has the pandemic changed the way we live and behave, or will it do so in the future? If so, which changes are beneficial and which are harmful with respect to the risk of suicide and suicidal behavior?
High-risk groups	
COVID-19 related high-risk groups	
Bereaved	Are people who have lost someone to COVID-19 at increased risk of suicide and suicidal behavior?
Vulnerability to COVID-19	Do people who may be particularly vulnerable to COVID-19 (e.g., older people, those living with chronic conditions or other medical complications) have elevated risk of suicide and suicidal behavior?
Infected by COVID-19	Are people who are recovering or have recovered from COVID-19 at increased risk of suicidal behavior? Are there neurobiological mechanisms that mediate any increased risk for these people? Are people experiencing longer-term physical consequences of COVID-19 infection at increased risk of suicide and suicidal behavior?
Frontline care workers	Is there an increased risk of suicide and suicidal behavior among frontline health and social care staff who are looking after patients with COVID-19? If so, is this risk associated with exposure to the virus, loss and grief, ethical challenges of having to make unprecedented choices, or something else?
Other high-risk groups	
Mental health problems	Has the risk of suicide and suicidal behavior increased for people with pre-existing mental health problems?
Suicide attempters	Are there increased numbers of people who make suicide attempts without presenting to hospital?
Economically affected and high-risk occupational groups	Are people whose economic circumstances have been adversely affected by the pandemic (e.g., those who have lost their jobs, those whose businesses have folded) at increased risk of suicide and suicidal behavior? What is the impact of COVID-19 on suicide and suicidal behavior in different occupational groups, e.g., health-care staff, those working in the retail sector, artists, and groups in precarious working conditions?

Table continued next page

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Table 2. continued

Young people	Are children and adolescents at increased risk of suicidal behavior as a result of factors such as changes to their educational and vocational opportunities and reduced face-to-face contact with their peers? Are there particularly sensitive developmental stages or ages where interruptions will have the greatest impact on suicide and suicidal behavior in adulthood? What is the impact of COVID-19 on trends in suicide and suicidal behavior among children, adolescents, and young adults?
Older people	Are older people at increased risk? What are the impacts of bereavement, loneliness, vulnerability to COVID-19, and stigma? Do living arrangements (e.g., living alone, living in aged care facilities) have an influence on risk?
Migrants/ refugees and displaced people	Is there an increased risk of suicide and suicidal behavior for migrants who may be living without a job in their host country or being forced to return to their native country? And what about refugees and displaced people living in camps with limited access to support or care? Are there differences between migrant groups and are refugees, asylum-seekers, and irregular migrants at increased risk of suicidal behavior?

Table 3. Example research questions relating to whether particular approaches/responses might help to mitigate any risk of suicide and/or suicidal behavior associated with the pandemic

Mental health consequences of lockdown	Are there country- or region-level differences in the pandemic response that are associated with greater or lesser changes in rates of suicide and suicidal behavior? For example, does the timing, scale, intensity, and duration of lockdown make a difference? What about the way physical distancing measures are enforced? Does the extent to which the public buys into and observes the restrictions (and whether this changes as time goes by) impact on any changes seen in suicide and suicidal behavior? Does it make a difference whether the lockdown is a well-articulated and coordinated national strategy or whether it is more fragmented in its conceptualization and implementation?
	Do rates of suicide and suicidal behavior vary across different stages of the pandemic (e.g., during lockdown, once restrictions are eased), and what does this tell us about particular lockdown policies? Similarly, do sales of prescription psychotropic medication and/or use of mental health services vary by pandemic stage, and what can we learn from this?
	How can social networks be activated to identify and provide support to people who may be struggling due to lockdown?
	How can care best be delivered to suicidal individuals when people are unable or afraid to leave their homes?
Economic consequences of the pandemic	What can we learn from responses to previous pandemics or epidemics (e.g., the 2003 SARS outbreak) and economic crises (e.g., the 2008 recession) to inform our response to COVID-19?
	Are there country- or region-level differences in economic responses that are associated with greater or lesser changes in rates of suicide and suicidal behavior? For example, do income guarantees, employment protection, and labor market programs make a difference? What about equity of access to resource provision?
Burden of mortality from COVID-19	How can care best be provided to individuals who have been bereaved through COVID-19 and to individuals who have been bereaved by suicide during the pandemic?
	What sort of interventions might improve media reporting in relation to deaths due to COVID-19 and suicides during the pandemic?
Health-care and crisis line responses	How is availability of mental health services related to risk of suicide and suicidal behavior? Are there ways of scaling up mental health-care delivery?
	How does knowledge of sociodemographic and clinical risk factors and neurobiological mechanisms inform prevention/ treatment approaches?
	What are the best ways to reach out to people who are not in touch with services? How can we encourage help-seeking?
	How can mental health services best be delivered to suicidal individuals during the pandemic? How well do telehealth and online options work? Is it possible to identify and evaluate new forms of health-care services based on experiences and adaptations during the pandemic?
	How can general health and mental health professionals be trained to respond effectively to suicidal clients or patients during the course of the pandemic? Do they need to learn new ways of operating?
	Have crisis lines providing telephone and online chat support been used as resources for suicide prevention during the pandemic? Has the use of these sorts of services by suicidal individuals increased? Do people find them helpful?
Workplaces and educational institutions	How can workplaces help mitigate the risk of suicide and suicidal behavior during the pandemic? Are there ways they can support workers who may be working fewer hours or taking home less pay? And can they play a role in helping workers who may have lost their jobs?
	How can schools and universities keep students positive, motivated, and safe during the pandemic?

iors (Mars et al., 2019; May & Klonsky, 2016). The collaboration provides a mechanism to work together, pool data using shared protocols, and investigate different outcomes with a range of research designs. It should also facilitate reaching global consensus on issues such as the impact of lockdown on suicide risk and how best to mitigate risk, especially if further periods are required to address the re-emergence of COVID-19, as has recently been reported in countries such as Iran (Worldometers, 2020).

The collaboration has identified several suggestions for research to help inform responses to the current and future pandemics, formulating these as research questions (see

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Table 2 and Table 3). The proposed research questions link to the gaps in knowledge that we identified earlier. Table 2 highlights research questions relating to whether rates of suicidal behavior increase as a result of the pandemic and what mechanisms may be driving any increase, suggesting specific research for the general population and for high-risk groups. Table 3 presents research questions relating to whether particular responses might help to mitigate any risk of suicide associated with the pandemic. Members of the collaboration have worked with the International Association for Suicide Prevention (IASP) to establish a searchable on-line list of ongoing COVID-relevant studies on suicidal behavior, managing suicidal crises, and suicide prevention (https://www.iasp.info/covid-19/covid-19-suicide-research-studies) to facilitate collaboration and avoid duplication, similar to the website developed for longitudinal studies on mental health during COVID-19 (https://www.covidminds.org/longitudinalstudies). The role of the IASP, in collaboration with other international and national organizations (e.g., WHO, International Association of Suicide Research [IASR], American Foundation for Suicide Prevention [AFSP], and others), is to provide up-to-date information on suicide research and prevention in its global network. The IASP is developing a strategic plan to reduce COVID-19-related suicidal behavior and building a central pool of resources (expertise, research, guidelines for good practice, briefings) that will be available to support organizations globally (IASP, 2020a, b). Members of the ICSPRC have contributed to an IASP briefing paper on reporting suicide during the COVID-19 pandemic and IASP members have developed guidance to help workplaces and professional associations through the COVID-19 Crisis (IASP, 2020a, b). The combination of the specific research focus in the ICSPRC and IASP, with its prevention network and links to the WHO, as the leading organization for suicide prevention globally, is a core strength of this collaboration and many members are active in both.

A key issue the group needs to consider is how best to ensure the rapid dissemination of research and surveillance information to inform policy-making and prevention activities. Furthermore, there is a need to consider the best way of responding to (sometimes unsubstantiated) findings reported in news articles that may be hastily picked up by policy-makers and politicians. Three sorts of information are relevant: (a) routinely available data (e.g., national mortality, survey data, research publications) that not everyone will be aware of – this could be disseminated via regular briefings/updates; (b) pre-publication research data and findings that may inform policy, but are going through peer review – one possible approach to sharing these data is via regular webinars/research presentations; and (c) highly sensitive surveillance data, for example, known only to government officials and individuals on national suicide prevention strategy groups who have agreed not to disclose them. The latter data are unlikely to be shareable, but it will be important to consider approaches to share broad findings to give those working in different settings the opportunity to act pre-emptively and before local data are available.

Facilities for sharing data/measures/protocols/pre-peer-reviewed manuscripts (e.g., the Open Science Framework and PsyArXiv) are possible options for building a repository of research that can have a digital object identifier (DOI) and thus are traceable and citable. *Crisis* now also publishes Registered Reports, which allow authors to submit research protocols for review before the research is conducted.

Conclusion

The unique challenges posed by the current pandemic require suicide researchers to collaborate in order to understand the impact of COVID-19 on suicide and suicidal behavior and effective ways of mitigating the risk. We urge colleagues to complete the recently launched register of suicide prevention research studies to facilitate this (https://www.iasp.info/covid-19/covid-19-suicide-research-studies). In a challenging economic environment, suicide researchers will need to advocate strongly for the importance of the issues we have identified and make sure the research that is conducted is of the highest possible quality and ethical standard to inform public health, policy, and healthcare responses. Lessons learned and subsequent changes made will contribute to improving response plans for future possible waves in this pandemic and future pandemics. The establishment of the International COVID-19 Suicide Prevention Research Collaboration is an important contribution to this effort and we ask suicide researchers particularly from regions currently not represented to join us.

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and changes in the mental health system, both inside (ie, in the formal mental health system) and outside (ie, in the community), are necessary to bring about any improvement. EMHIP is a practical, locality-based service improvement programme designed to bring about this change.

The aim of the project is to reduce ethnic inequalities in access, experience, and outcome within local mental health services. EMHIP will start with a process of knowledge and evidence synthesis, bringing together experiences of service users and individuals from BME communities, examples of good practice across the country, evidence in relation to equitable and effective mental health care, and research findings and recommendations from inquiries and reports. From this initiative, a practical, whole-system intervention programme will be developed and adapted for the purpose through a process of coproduction, involving service providers, service users, and BME communities locally. In phase 2 of the project, this intervention programme will be implemented in one borough (Wandsworth), and further refined by engagement and consultation with local communities and service users. Outcomes will be evaluated systematically through a cycle of comprehensive ethnicity audits based on routine service use data (adapted and augmented where necessary) and additional qualitative data.

When other initiatives to improve mental health care for BME communities have failed to produce meaningful or sustainable change,[7] why should this project succeed? There are several reasons to believe that this approach will change the current, discriminatory dynamics of mental health care. EMHIP is a service-level intervention that is conceptualised, primarily, as a way of improving the overall quality of clinical care and patient safety for everyone, not just BME groups. The project combines an inside and outside approach through equal participation and commitment from statutory care providers, community agencies, and the wider community. The success of such a whole system project depends on strong leadership and collaboration between various key stakeholders. This process is underway in southwest London, where local BME communities and service users are "stepping up boldly" along with NHS agencies to ensure that local mental health services are respectful, effective, safe, and appropriate to their needs.[8]

SPS is Project Lead of the Ethnicity and Mental Health Improvement Project. MG is Director of the Wandsworth Community Empowerment Network. The Wandsworth Community Empowerment Network receives funding from the South West London and St George's Mental Health NHS Trust. MG is also a member of the Ethnicity and Mental Health Improvement Project team.

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Key ethical questions for research during the COVID-19 pandemic

In these times of rapid change, with high levels of uncertainty, anxiety, social isolation, and financial pressure, mental health worldwide is likely to be at risk. Researchers are rightly ensuring that mental health research is included in the response to the coronavirus disease 2019 (COVID-19) pandemic.[1] Here, we reflect on ethical issues to consider when conducting research on self-harm, suicide, and the broader impacts of COVID-19


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in the midst of a global pandemic, and provide some recommendations to consider when researching these topics.

In non-pandemic times, research suggests that participating in self-harm and suicide studies is unlikely to cause substantial distress, even in the most vulnerable,[2] and that any detrimental effects are short lived and outweighed by altruism.[3] However, we do not know whether this holds in the context of a global pandemic. Researchers around the globe have paused their work for several reasons. First, to avoid unnecessary burden on people who might be in distress during the pandemic. Second, because the context of the current research environment means that results will require cautious interpretation. Third, to ensure that continued recruitment of people to studies on self-harm and suicide when a global crisis is occurring is reasonable and safe; transferring face-to-face research online must be very carefully considered. Finally, because the supports and services that participants would be signposted to throughout a study might not able to provide support in the usual ways and formats.

Mental health research, including self-harm and suicide, is a vital part of the response to the pandemic, but we are concerned about the ethical robustness of some studies already recruiting. We have seen studies that do not provide sufficient information to enable fully informed consent, do not measure mood before or after participation, do not provide any signposting other than to potentially anxiety-provoking messages about COVID-19, and do not attempt any kind of mood mitigation or debrief to help to stabilise anyone that does become distressed after participation. We would recommend that researchers be mindful that general research into the impacts of COVID-19, even if this does not evaluate mental health, self-harm, or suicide, should be viewed as a highly sensitive topic, with similar attention to safeguards needed to protect the wellbeing of participants.

We recommend that all studies into COVID-19, self-harm, and suicide measure mood before and after participation; a simple visual analogue scale has been used to good effect in several studies.[4] These mood measurements can also be used to decide whether a study can ethically continue, with a stop-study criterion set and applied if participants report very decreased mood after participation. Researchers should provide signposting and check that the services signposted to are operational and able to provide support (and in what format). Finally, providing mood mitigation to all participants is an important method to boost mood, particularly when participants have been asked to consider anxiety-provoking questions about COVID-19 and answer sensitive questions about self-harm or suicide. A number of methods including exam howlers,[5] cute animal pictures,[4] interactive websites,[6] and so-called doodle pages[7] have been shown to work for young people. The ethics of voucher lotteries and other incentives for participants in studies on suicide and self-harm have been questioned by lived experience authors.[8] Valuing the time of participants who contribute to these studies and respecting the challenges of taking part in research on difficult topics is important at a time of financial difficulty for many, particularly when there is little access to supports.

For new work evaluating COVID-19 and mental health impacts, patient and public involvement must be central to prioritising and designing research studies. Indeed, the MQ COVID-19 and mental health initiative[1] includes people with lived experience in the 18 members of their leadership team. This would be strengthened if people with lived experience were among the core leadership team (currently comprised of six senior academics). More than ever, it is crucial that patient and public involvement is embedded into research and that lived experience advisors are supported effectively—both emotionally and financially. Sarah Knowles (University of York) has recently curated materials for researchers to facilitate effective co-creation and patient and public involvement in the digital world.[9]

For all research to be considered ethical, the benefits must be high and the risk minimised. The research community must be very clear about who will benefit from the research, how it can be implemented to inform policy and practice, and in what time frame. Clearly, ethics committees across the globe have a vital role to play in weighing these issues and in the context of a growing plethora of online studies. Given social distancing and lockdowns, an effective digital response is crucial. Clinical mental health services globally are having to mobilise staff digitally and remotely to meet current need. The research community also needs to respond effectively to the COVID-19 pandemic, but we must ensure that what we are doing is ethical.

We declare no competing interests.

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RESEARCH ARTICLE

Language use and suicide: An online cross-sectional survey

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Data Availability Statement: The data contains sensitive information and several indirect identifiers such as country in which participants are currently living, gender and free text responses about personal experiences in relation to suicide. Our participant information sheets stated we would share data with other researchers on request. The information was approved by Faculty of Health Sciences Research Ethics Committee, University of Bristol. Data are available upon request from the University of Bristol data repository, data.bris, at https://doi.org/10.5523/bris.2wl9djfo3d5c82isc2de44yvkf.

Abstract

Background

There has been a recent focus on language use in relation to suicide, with concerns raised about the potential to cause distress, perpetuate stigma and discourage help-seeking. While some terms are promoted as more sensitive than others, empirical research exploring the views of people affected by suicide to inform academic and media guidelines is lacking.

Methods

An anonymous, cross-sectional online survey was promoted opportunistically via online channels. Participation was requested from adults affected by suicide. Participants were asked to rate descriptors pertaining to suicidal behaviour according to perceived acceptability. A descriptive analysis of quantitative data was conducted alongside thematic content analysis of free-text data.

Outcomes

There were 2,719 responses, of which 1,679 (61·8%) were complete. Of phrases describing non-fatal suicidal behaviour, "attempted suicide" had the highest median acceptability score. Of phrases describing fatal suicidal behaviour, "took their own life" and "died by suicide" had the highest median acceptability scores. The scores for "commit suicide" were most variable and spanned the range of acceptability scores. Free text data illustrated the nuances in decision-making.

Interpretation

Variation in opinion exists amongst people affected by suicide regarding most phrases, often depending on contextual factors. "Attempted suicide", "took their own life", "died by suicide" and "ended their life" were however considered most acceptable. We argue that academic and media guidelines should promote use of these phrases.

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Competing interests: P.P., E.N. and D.K. co-authored a journal article about avoidance of the use of the word "commit" in relation to "suicide".

Introduction

The importance of language in reflecting and shaping assumptions has long been recognised.[1] Research has demonstrated the influence of language on thoughts and memory.[2,3] Furthermore, substitution of single words alone have been found to have an effect on attitudes and behaviours.[4,5] With regards to the field of mental health, in which stigma may discourage help-seeking and impact upon experiences of care, close attention is often given to language used. [6,7]

Suicide is highly stigmatised. Amongst people who have lost a significant other due to suicide, stigma has been associated with increased social withdrawal and reduced psychological and somatic functioning.[8] People bereaved by suicide have highlighted that the word "commit" is most commonly used in conjunction with a criminal act, resulting in a negative connotation of immorality, which is now inconsistent with the legal status of suicide in most countries globally.[9–12] Consequently, use of the phrase "commit suicide" in the media and in academia has been discouraged.[13–15] Most recently a letter, signed by over 140 public figures and widely publicised in the British media, advised against use of this phrase in the context of responsible media reporting.[16–18] Alternative phrases such as "died by suicide" and "took one's own life" have been suggested. However, these phrases each have their own implications; for example "died by suicide" may remove a person's agency in suicide and "took one's own life" omits the word "suicide" itself.[19,20] Careful consideration is therefore required when making decisions about language use, but to date there has been little research to guide this.

This study explores the views of people affected by suicide with regard to language used in relation to suicidal behaviour. People were considered to have been affected by suicide if they or someone they knew had experienced thoughts of suicide or attempted suicide, or if anyone they knew had died by suicide.

Methods

To avoid confusion, the phrases "non-fatal suicidal behaviour" and "fatal suicidal behaviour" have been used to group the terms evaluated in this paper. These phrases were not evaluated in the study due to their infrequent use. We therefore acknowledge that use of these phrases may succumb to some of the very problems being discussed.

Study design and participants

A pragmatic survey was developed and piloted by the authors, some of whom have been affected by suicide or self-harm, to explore language use in relation to suicidal behaviour (S1 File). A participant information page was included at the beginning of the survey and consent was obtained. The survey included 33 questions. Standard baseline data were collected on the following: participants' age group, gender, level of education and country of residence. The way in which participants had been affected by suicide was also included to enable exploration of its effect on results. A five-point Likert-type scale was chosen to measure and compare attitudes to different descriptors of suicidal behaviour. Descriptors were included if they had been encountered by any of the co-authors within the academic, clinical and charity settings in which they work. Following feedback from the reviewing ethics committee, descriptors were organised into separate questions based on their relevance to whether or not a person had died. Participants were therefore asked to rate phrases to describe a situation "where a person has performed an act of suicide or self-harm but has not died", giving a score between 1 ("not acceptable") and 5 ("acceptable"). They were then asked to rate phrases to describe a situation "where a person has performed an act of suicide or self-harm and has died". To augment

findings, drop-down lists of descriptors were included to ascertain which terms participants believed to be most and least appropriate. Free-text questions were included to understand participants' reasons for their choices and to allow alternative descriptors to be suggested. Ethical approval was granted by the University of Bristol Faculty of Health Sciences Research Ethics Committee.

The anonymous survey was hosted online (SurveyMonkey) between 1st-31st August 2018. The survey was promoted through the authors' own national and international research networks as well as lived experience and charitable organisations in the United Kingdom (UK), Australia and United States of America (USA), using email, Twitter, Instagram, Reddit, Facebook and organisation websites. Recruitment messages specified that participants should be over 18 years of age and have been affected by suicide. No other restrictions were applied.

Statistical analysis

A primary descriptive analysis of quantitative data was conducted on all complete responses of those personally affected by suicide and living in majority native English-speaking countries [21]. Data were analysed using Stata (version 15.1). Participants were considered to have been personally affected by suicide if they had experienced thoughts of suicide, attempted suicide, or if anyone they knew personally had experienced thoughts of suicide or attempted or died by suicide. Participants whose only experience of suicide was through their work, for example working in a professional or voluntary capacity with someone who had attempted or died by suicide, were excluded in the primary analysis ($n = 33$). A sensitivity analysis was conducted on all (including incomplete) responses of the same population (S2 File). Due to the skewed nature of the results, medians and interquartile ranges were calculated and the data were summarised using box plots. As acceptability scores were highly varied for the phrase "commit suicide", the quantitative responses of those who selected "commit suicide" as the term they considered most appropriate or least appropriate option were explored.

A secondary analysis was conducted comparing the acceptability scores for terms to describe fatal suicidal behaviour between people who: (1) experienced thoughts of suicide or attempted suicide themselves, (2) personally knew someone else who had experienced thoughts of suicide or attempted or died by suicide, and (3) worked or volunteered with people affected by suicide. Participants were excluded from this analysis if they fit into more than one group. A supplementary analysis (S3 File) explored the results of participants living in the UK, Australia and the USA separately.

Free-text analysis

Thematic content analysis was performed on free-text data from complete responses regarding the terms emerging as most and least appropriate in the quantitative analysis. For example, as "attempted suicide" received the highest acceptability scores, the free-text responses of those who selected this term as most appropriate were analysed. "Topped themselves" had the lowest median and interquartile range scores of descriptors of fatal suicidal behaviour. However, due to infrequent use it was considered more useful to analyse the free text data from the term with the second lowest acceptability scores, "successful suicide". Free text analysis was also performed on the complete responses of participants from English-speaking countries who selected "commit suicide" as the term they considered most or least appropriate to use, to understand the highly variable scores for this term and because this has been the focus of much of the debate around language.

For each term, two authors (P.P or K.H. in conjunction with L.B.) carried out an independent open coding of the first 50 responses to identify themes. Codes were compared and any

differences discussed until consensus was reached and a coding frame derived. A single author (P.P. or K.H.) then used the frame to code all remaining responses for each term. To provide a broader context, complete coding of all terms was also performed for the first free-text question (preferred term for non-fatal suicidal behaviour).

Role of the funding source

Funding from a National Institute of Health Research Academic Clinical Fellowship was used to host the survey online. The Wellcome Trust Institutional Strategic Support Fund enabled Open Access publication. The work was also supported by the Elizabeth Blackwell Institute for Health Research, the Economic and Social Research Council [ES/J500100/1] and MRC Addiction Research Clinical Training programme. The funders had no role in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript. All authors had full access to all the data in the study and had final responsibility for the decision to submit for publication.

Results

There were 2,719 responses, of which 1,679 (61·8%) were complete. Of the complete responses, 1,437 participants (95·1%) lived in English-speaking countries: 815 in the UK, 339 in Australia and 208 in the USA. Knowing a close friend or relative who had attempted or died by suicide was the most common way in which participants had been affected by suicide (n = 879; 52·4%). Table 1 outlines the baseline characteristics of respondents. People with incomplete quantitative responses were more likely to be younger, male, living in non-English speaking countries and more likely to have a lower level of education compared to those with complete quantitative responses.

Non-fatal suicidal behaviour

"Attempted suicide" had the highest median score (4; IQR = 3–5) and "near miss" had the lowest median and interquartile range scores (1; IQR = 1–2) out of descriptors of non-fatal suicidal behaviour (Fig 1). The same terms had the highest and lowest acceptability scores in the sensitivity analysis including incomplete data (S2 File). The interquartile range of both "non-fatal self-harm" and "suicide survivor" spanned both acceptable and unacceptable scores. All other descriptors were deemed 'unacceptable' by most participants.

Of the 845 participants who selected "attempted suicide" as the most appropriate term for non-fatal suicidal behaviour, 697 provided a free-text comment. Participants most commonly cited the following reasons: perceived accuracy, clarity and neutrality (Panel 1). When participants referred to the content and meaning of the phrase, they most commonly stated that it was non-euphemistic and reflected the motive and the seriousness of the behaviour, without imposing an explanation. Opinion was divided regarding the tone of the phrase, with some stating that they selected the phrase as it sounded clinical, whilst others preferring that it was not too clinical.

> *"It is an accurate description without the subjective overtones of some of the others. It does not attempt to interpret the reasons behind the person's action which are known only to him/her."*
>
> ($\geq$ 65years, close friend or relative attempted or died by suicide, has attempted suicide themselves)

Table 1. Baseline characteristics.

	Categories	No. of complete quantitative responses (%)	No. incomplete quantitative responses (%)
Age	18–29 years old	571 (37·8)	632 (52·5)
	30–49 years old	588 (38·9)	407 (33·8)
	50–64 years old	306 (20·3)	140 (11·6)
	≥65 years old	46 (3·0)	24 (2·0)
Gender	Female	1151 (76·2)	820 (68·3)
	Male	292 (19·3)	328 (27·3)
	Transgender female	11 (0·7)	9 (0·8)
	Transgender male	12 (0·8)	10 (0·8)
	Gender non-conforming	25 (1·7)	18 (1·5)
	Other	13 (0·9)	8 (0·7)
	Prefer not to say	7 (0·5)	8 (0·7)
Highest level of education	Primary Education	28 (1·9)	48 (4·0)
	Secondary/Further Education	475 (31·4)	444 (37·0)
	Higher Education	974 (64·5)	685 (57·1)
	Other	34 (2·3)	23 (1·9)
Country of residence	English-speaking countries	1437 (95·1)	1056 (89·6)
	Non-English-speaking countries	74 (4·9)	123 (10·4)
Affected by suicide*	A close friend or relative attempted or died by suicide	879	599
	An acquaintance attempted or died by suicide	427	314
	I have worked in a professional capacity (e.g. as a practitioner) with someone who has attempted or died by suicide	281	167
	I have attempted suicide	485	313
	I have experienced thoughts of suicide, but not acted on them	720	610
	None—I have not had any experience of suicide	0	39
	Other	91	142

Using chi2 test, $p<0·0001$ for age, gender, education level and country of residence

*more than one option could be selected, category for no experience of suicide not included in chi2 test

https://doi.org/10.1371/journal.pone.0217473.t001

Of 287 people who selected "near miss" as the least appropriate term for non-fatal suicidal behaviour, 233 provided a free-text comment. Comments focussed more on the meanings associated with the phrase than the general characteristics, although some did highlight the vagueness or ambiguity of the phrase. The most common reason for considering the phrase least appropriate was that it understated the seriousness of the event. Participants also suggested that it did not reflect suicidal intent and was insensitive and disrespectful. Implied failure or negativity in relation to surviving was also noted, which a few participants suggested could incentivise further suicidal behaviour.

"Sounds like the fact the suicide didn't succeed is a "miss" or bad thing. This is a horrible term to use."

(18–29 years, close friend or relative attempted or died by suicide, an acquaintance had attempted or died by suicide, has experienced suicidal thoughts themselves but had not acted on them)

"It's an expression which is dismissive of the persons suffering. Making their pain insignificant. Fobbing off the severity of their situation."

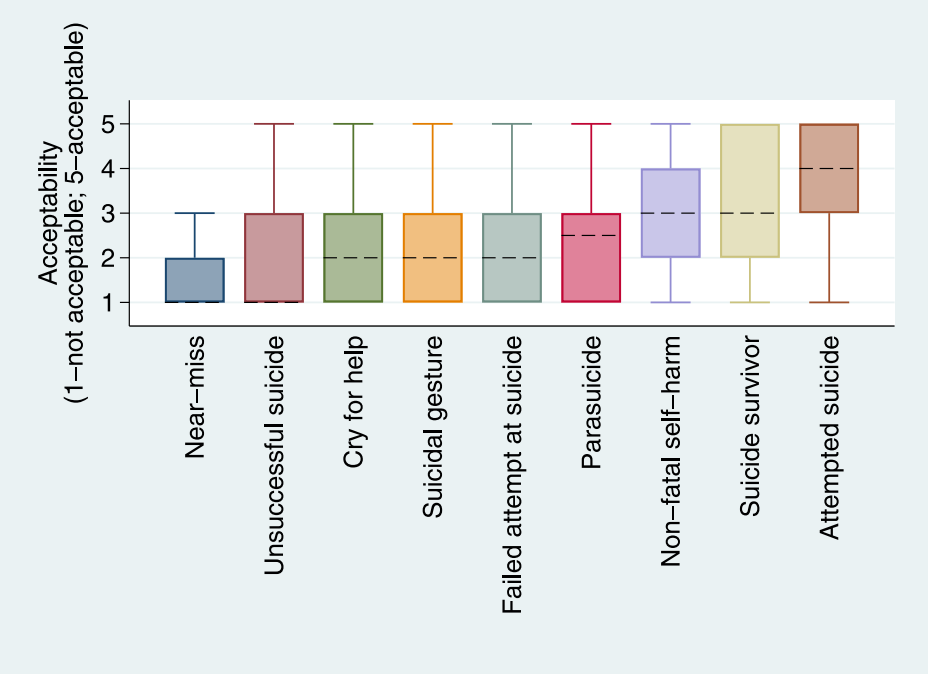


Fig 1. Box plots of acceptability scores for descriptors of non-fatal suicidal behaviour (excludes outliers; ordered by medians, denoted by dashed line; 1 = unacceptable 5 = acceptable).

https://doi.org/10.1371/journal.pone.0217473.g001

(50–64 years, close friend or relative attempted or died by suicide, has experienced suicidal thoughts themselves but had not acted on them)

Fatal suicidal behaviour

Of descriptors of fatal suicidal behaviour, "took their own life" (5; IQR = 4–5) and "died by suicide" (5; IQR = 3–5) had the highest median scores, "topped themselves" (1; IQR = 1–1) and "successful suicide" (1; IQR = 1–2) had the lowest median scores (Fig 2). These findings were replicated in the sensitivity analysis (S2 File). The interquartile range of several phrases spanned both acceptable and unacceptable scores: "suicide victim", "fatal self-harm", "killed themselves", and "committed suicide". The scores for "committed suicide" were most varied, spanning the entire range.

There were 211 participants who selected "took their own life" as the most appropriate term for fatal suicidal behaviour, 169 of whom provided free-text comments. A reflection of an individual's agency was most commonly cited as the reason for choosing the term. Participants also frequently stated that they had selected the phrase because it was descriptive and softer in tone. In contrast to opinion regarding "attempted suicide", some participants specifically highlighted that they preferred that it did not include the word suicide.

"It addresses the fact that they chose to do it. Without it sounding too harsh. I use this term when talking about my friend. It keeps her human."

(30–49 years, close friend or relative attempted or died by suicide, has worked in a professional capacity with someone who has attempted or died by suicide, has experienced suicidal thoughts themselves but had not acted on them)

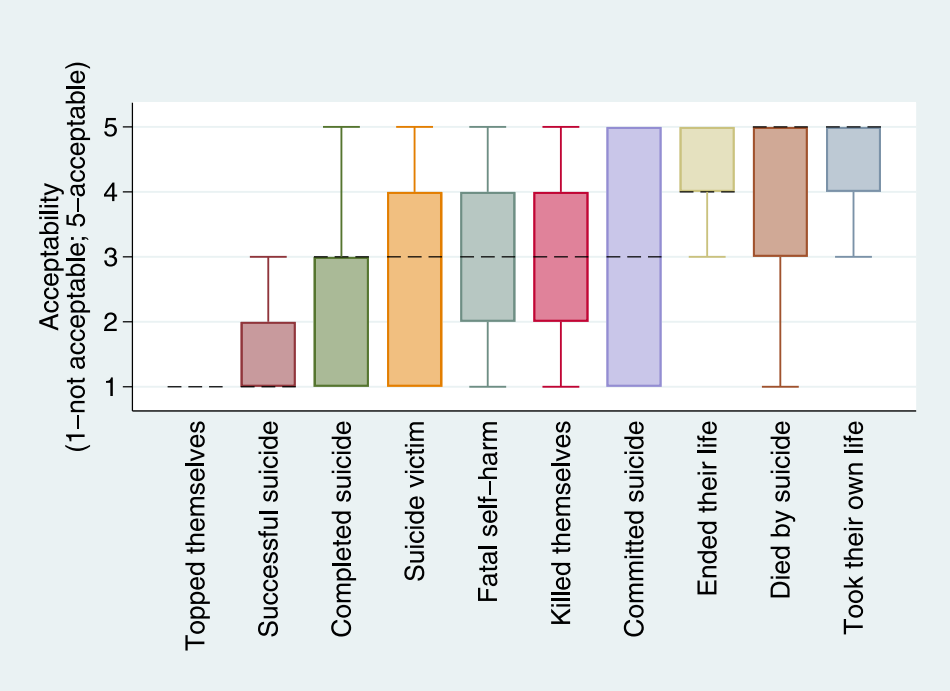


Fig 2. Box plots of acceptability scores for descriptors of fatal suicidal behaviour (excludes outliers; ordered by medians, denoted by dashed line; 1 = unacceptable 5 = acceptable).

https://doi.org/10.1371/journal.pone.0217473.g002

"After a number of attempts over many years Mum took her own life. I feel it is important to recognise her agency without judgement even although she was experiencing a severe depressive episode at the time."

(50–64 years, close friend or relative attempted or died by suicide, an acquaintance attempted or died by suicide, has worked in a professional capacity with someone who has attempted or died by suicide)

"I hate the word suicide because it freaks people out, so for me this is the softest version."

(18–29 years, close friend or relative attempted or died by suicide, an acquaintance attempted or died by suicide, has worked in a professional capacity with someone who has attempted or died by suicide, has attempted suicide themselves)

"*The word suicide is still associated with illegality and negative morality. . .*"

($\geq$ 65years, close friend or relative attempted or died by suicide, an acquaintance attempted or died by suicide, has experienced suicidal thoughts themselves but had not acted on them)

Of the 381 participants who considered "successful suicide" the least appropriate term for fatal suicidal behaviour, 327 provided a free-text comment. The majority of these participants attributed this to its positive framing of suicide. Some specified that the term inappropriately celebrated suicide or portrayed it as an achievement. A few raised concerns that this could encourage suicide. The term was considered insensitive and distressing to those bereaved by suicide.

"What is successful about not getting help and support, and not seeing a reason to live????"

(50–64 years, close friend or relative attempted or died by suicide, an acquaintance attempted or died by suicide, has worked in a professional capacity with someone who has attempted or died by suicide, has experienced suicidal thoughts themselves but had not acted on them)

"I think this essentially glorifies the suicide, making it seem like something to aim for or have a goal. Suicide is a last resort for people, it's not something to celebrate as a success"

(30–49 years, close friend or relative attempted or died by suicide, has attempted suicide themselves)

"'"Successful" has positive connotations which I feel is completely inappropriate. There is absolutely no success and nothing positive for anyone affected by suicide—not for families and friends, nor for the victim themselves. It is a result of unbearable distress and desperation."

(18–29 years, close friend or relative attempted or died by suicide, has experienced suicidal thoughts themselves but had not acted on them)

Most participants were affected by suicide through more than one type of experience. Of complete responses of those living in majority native English-speaking countries, 298 (20.7%) participants had been affected by suicide exclusively through their own experiences ("individual"), 319 (22.2%) participants had been affected solely through those of someone they knew outside work ("someone else") and 33 (2.3%) participants' only experience was of working or volunteering with people affected by suicide ("work"). The descriptors considered most and least acceptable were the same for each group. However some variation in medians and interquartile ranges for a number of descriptors can be observed (Fig 3).

Opinion about the phrase "committed suicide" was most divided amongst people who had been affected by suicide through someone they knew (3; IQR = 1–5). Those who had been affected by suicide solely through their own experiences more commonly found it to be acceptable (4; IQR = 3–5) compared with those whose experience of suicide was exclusively through work or volunteering (2; IQR = 1–3).

Amongst participants who selected "commit suicide" (n = 367) as the most appropriate term, "took their own life" (5; IQR = 4–5), "ended their life" (4; IQR = 3–5), "died by suicide" (4; IQR = 3–5) and "killed themselves" (4; IQR = 3–5) were also generally considered acceptable alternatives (S4 File). Of the 274 participants who provided a free-text comment, most commonly cited reasons of accuracy and common usage for choosing "commit suicide" as most appropriate. Some disputed the idea that the term implies criminal undertones. "Commit suicide" was not selected as most appropriate by anyone who had experienced suicide through work or volunteering only. The free-text responses were similar between people who had been affected by suicide through their own experiences and through the experiences of others. More people who had been affected by suicide through their own experiences cited the clarity of the phrase "commit suicide" as their reason for choosing it. More people who had been affected by suicide through the experiences of someone they knew favoured it for being 'to the point' and non-euphemistic.

"because by the very definition of "committed", it is EXACTLY what my son did. It has NO implications of being something unlawful or an act of crime, as many suicide "experts" will try

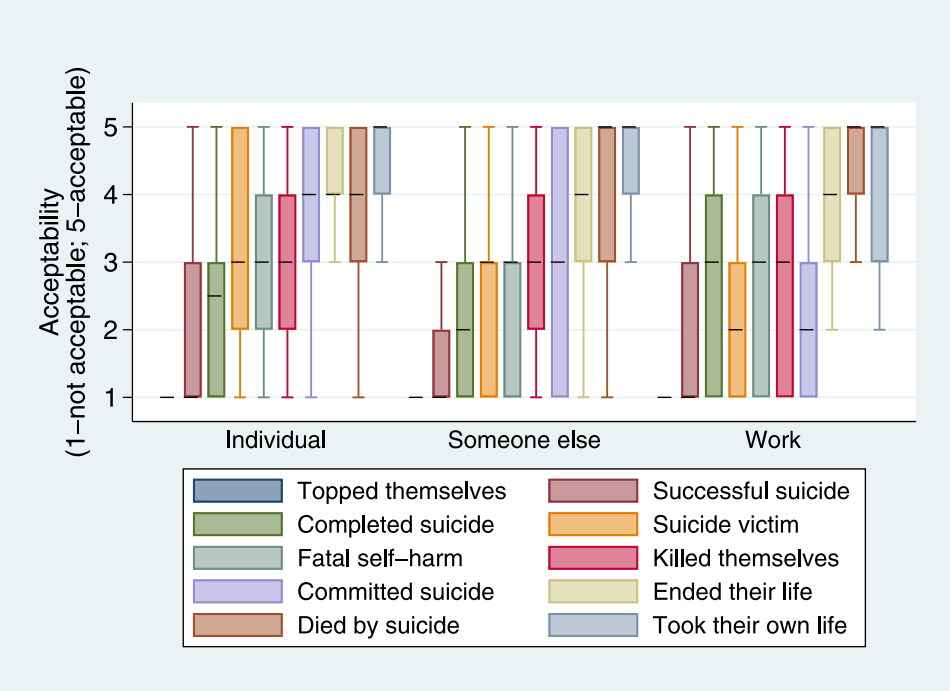


Fig 3. Box plots of acceptability scores for descriptors of fatal suicidal behaviour by manner in which affected by suicide (excludes outliers; medians denoted by dashed line; 1 = unacceptable 5 = acceptable).

https://doi.org/10.1371/journal.pone.0217473.g003

*to tell you. Political correctness gone bat s*** crazy. Makes me SOOOOOOOOO angry. Do not tell ME what my son did! Don't you dare "correct" me!"*

(50–64 years, close friend or relative attempted or died by suicide)

"They were committed to the act of not living. I know committing is supposed to have a criminal content, but we don't think of that when people commit to marriage, etc so it's acceptable to me. I use it the term."

(50–64 years, close friend or relative attempted or died by suicide)

"It's the most common term to use, and I find it pretty neutral"

(18–29 years, has experienced suicidal thoughts themselves but had not acted on them)

"It states the situation as it is and it presents the realest explanation, it us also the least offensive because it is what the person did, it is also a formal way to say it which is better than the others on the list"

(18–29 years, has attempted suicide)

There were 167 free-text comments from the 181 participants who selected "commit suicide" as the least appropriate terminology. Respondents most commonly cited the criminal connotation associated with the phrase. A number also perceived it to be outdated. No difference was noted between those who had been affected by suicide only through their own experiences and those who had experienced suicide through others, personally or professionally.

"My son was not a criminal!"

(50–64 years, close friend or relative attempted or died by suicide)

"It is too shocking a phrase to hear and say. It is filled with emotional weight that stops conversation."

(50–64 years, close friend or relative attempted or died by suicide)

"This term was created when suicide was a crime. Continuing to use it just perpetuates suicide is a crime and isn't compassionate language."

(18–29 years, has attempted suicide)

Alternative phrases

Of the 1,679 complete quantitative responses, 188 participants provided suggestions of alternative phrases to describe suicidal behaviour, although many indicated that these were not necessarily preferred options. The most common suggestion was inclusion of a statement reflecting the intention of the person who has died. Most of those who advocated for this specifically suggested "chose to" or "decided to" before a descriptor. However, other participants expressed a preference to avoid reference to an individual's agency because this implied free choice.

". . .I wouldn't say chose to end their life, because at that point it doesn't seem like you have a choice."

(*30–49 years*, close friend or relative attempted or died by suicide, has experienced suicidal thoughts themselves but had not acted on them)

"The word suicide suggests an act that someone has made the choice to carry out. So many people have negative views of this word (selfish, coward etc.). My Dad died by suicide and he was very unwell, his judgement and intent was impacted by his mental health. It wasn't a choice for him. But people who hear suicide don't see it that way."

(*18–29 years*, close friend or relative attempted or died by suicide)

The second most common response related to the inclusion of an underlying cause of death within the phrase rather than the method. Suggestions included "died by brain disease", "mental illness", "hopelessness" or "family rejection". One participant summarised reasons for and against this approach.

"It's not a complete swap-out, but I do wonder why, for people with known mental illness preceding their death by suicide, we don't say they died from mental illness. To me it's like cancer. Technically someone might die from a complication of cancer, like pneumonia, but we say they died from cancer. If I die from suicide, I died from depression. However, I can see that that may be a very individual and complex thing, and suicide is often multifactorial."

(18–29 years, has worked in a professional capacity with someone who has attempted or died by suicide, has attempted suicide themselves)

A number of participants described their concerns regarding the avoidance of using the word "suicide".

"I think avoiding the word suicide all together is dangerous in itself. We're isolating those that might be having those thoughts and telling them it's not ok to reach out and ask for help and making them feel alone."

(30–49 years, close friend or relative attempted or died by suicide)

"My brother committed suicide and my sister attempted suicide. I don't think we should be scared of using the word suicide but maybe as a society we should be more open."

(50–64 years, close friend or relative attempted or died by suicide)

Other ideas and phrases highlighted were: the use of language differs depending on the person and the context; "died" or "passed away" without the use of the word "suicide"; use of the word "battle" e.g. "lost the battle with depression"; "victim" e.g., "victim of suicide/ mental health"; "suicided"; "ended suffering"; using "died of" or "from", rather than "by", suicide.

Summary of free-text data

Overall, participants' responses to free text questions indicated a preference for terms that were perceived to be factual, clear, descriptive, commonly used and non-emotive. Non-judgment was frequently cited as an important characteristic, although participants also highlighted a range of judgments associated with terms considered appropriate: reflecting the seriousness of the behaviour, evoking compassion, refraining from blame whilst valuing life. Where participants' responses considered the potential consequences of phrases, appropriate terms were those considered to be non-stigmatising, respectful and validating, while some thought that inappropriate terms could trigger suicidal behaviour (Table 2).

Discussion

Main findings

This is the first study to investigate preferred language use in relation to suicidal behaviour of those affected by suicide. The majority of participants found "attempted suicide" acceptable to describe non-fatal suicidal behaviour, and "took their own life", "died by suicide" and "ended their life" acceptable to describe fatal suicidal behaviour.

Opinion regarding the phrase "commit suicide" was highly variable. Those who had been affected by suicide solely through their own experiences more commonly found it acceptable compared with those whose experience of suicide was exclusively through work or volunteering. Opposing views were, however, present in both groups. Reasons for choosing "commit suicide" as a preferred phrase for suicidal behaviour were that it was accurate, widely used and not perceived to have criminal undertones. However, those who selected "commit suicide" as the least appropriate terminology most commonly cited criminal connotations as the reason for this decision.

The findings demonstrate variations in opinion, particularly in terms of contextual factors such as how the individual has been affected by suicide and perceived intent of the act and whether this emerged from free choice. The former is highlighted by the term "suicide survivor" scoring more highly amongst people who had been affected by suicide solely through their own experiences, compared to those affected through the experiences of others. Variation in reasoning was also noted amongst people who considered the same term most appropriate, for example some endorsing the phrase "attempted suicide" for being clinical and some preferring it for precisely the opposite reason. This demonstrates the importance of reflective communication in one-to-one discussions. Where this is not possible in the media and academia,

Table 2. Themes and codes commonly emerging from free text analysis.

	Most appropriate term	Least appropriate term
General characteristics		
Accuracy	Factual	
Comprehensibility	Clear	Ambiguous
Descriptiveness	Descriptive	Vague, over-simplistic
Familiarity	Common parlance	
Tone and content		
Clinical or personal	Clinical vs. Not too clinical	Casual, detached, dehumanising
Emotional content	Non-emotive	Highly emotive
Direct acknowledgement of "suicide"	Softer vs. To the point	Avoidant
Meaning		
Neutrality	No judgment	Judgment
Specific meanings	Reflects individual's decision Reflects seriousness Evokes compassion Does not imply criminality/blame Values life	Downplays agency Trivialises Lacks compassion Frames living or suicide as failure Frames suicide as success
Potential consequences		
Effect on perceptions of suicidal behaviour	Non-stigmatising	
Effect on person engaging in suicidal behaviour	Validates emotions	Encouraging suicidal behaviour
Effect on those affected by suicidal behaviour	Respectful	Disrespectful

https://doi.org/10.1371/journal.pone.0217473.t002

the findings indicate a number of terms that are more consistently considered acceptable by most people affected by suicide, and the factors that individuals consider when appraising this terminology.

Strengths and limitations

This is the first large-scale study with international representation, which actively recruited those affected by suicide to investigate their preferred language use in relation to suicidal behaviour. The results should however be considered in light of a number of limitations. First, the study aimed to investigate language use in relation to suicidal behaviour, but referred to both suicide and self-harm (fatal and non-fatal) due to the use of this terminology amongst academics and national guidelines.[22] In academia there has often been a focus on the fluidity of intent, though more recently a distinction with non-suicidal self-injury has been acknowledged.[23,24] The free text answers indicated that the inclusion of self-harm led to some confusion regarding intent, which may have influenced the answers provided. Clarity regarding suicidal intent would however have been likely increased the acceptability of "attempted suicide".

Secondly, in recent years there have been a number of publications and media guidelines advising against use of words such as "commit", "successful" or "failed" in combination with "suicide", including by authors of this paper and Samaritans.[13–15,25,26] To our knowledge, this advice has been based on anecdotal evidence regarding the views of people affected by suicide. The survey was developed following debate about whether these views were representative, and the potential implications of advising against use of one particular term. It is possible that such previous publications have influenced the findings, particularly since some recruitment took place through social media channels associated with the authors and Samaritans. For example our supplementary findings indicate that "killed themselves" and "completed suicide" were considered acceptable by a greater proportion of respondents in the USA compared

with Australia and UK, which may reflect USA guidelines advocating the use of these phrases. Overall, however, the study demonstrates mixed results for the term "commit suicide".

Thirdly, whilst the baseline characteristics indicate participation from people with a range of backgrounds, the inclusion of a significantly greater proportion of younger females with higher levels of education suggests that the findings are more likely to represent this group. Furthermore, the findings may not be representative of all English-speaking countries, as responses from English-speaking countries other than Australia, the UK and the USA were limited. The supplementary analysis indicates that cultural differences may influence preferences, and therefore further research on this is warranted. However the key finding that "attempted suicide", "took their own life", "died by suicide" and "ended their life" were considered acceptable by most people holds true in the different countries.

Finally, when considering whether the nature of experiences affects perceived acceptability of terminology, it is pertinent to note that most participants were affected by suicide through more than one type of experience. These participants were not included in the sub-group analysis, which compared those who had *only* been affected by their own, someone else's or professional experiences. There are also likely to be other differences in the nature of participants' experiences within the three sub-groups, which we have not been able to ascertain but may influence their preferences.

Comparison to other studies

The findings of this survey are in-keeping with an Australian Delphi study, which aimed to develop evidence-based guidelines for young people communicating about suicide via social media.[27] The Delphi study did not, however, require personal experience of suicide to join the professional and youth panels. The panels endorsed items that advised avoiding language that glorifies suicide, and avoiding terms with criminal connotations. Our findings indicate mixed views regarding whether the phrase "commit suicide" carries such connotations. However, both studies endorse use of "died by suicide".

When making recommendations about language, a key consideration is the impact of language on behaviour. In the case of suicide, the impact on further suicidal behaviour and help-seeking is important and has been highlighted in our findings, with some raising concerns that "near miss" and "successful suicide" might encourage further suicidal behaviour by framing suicide as inevitable or as a positive outcome respectively. Participants in this study did not raise the possibility that language considered stigmatising might be protective against further attempts, as has previously been speculated.[20]

A recent randomised controlled trial examined framing effects of the use of different German-language descriptors: "suizid" ("suicide"), "freitod" ("free death") and "selbstmord" ("self-murder").[28] The analysis revealed that the term "freitod" increased support towards suicide amongst people suffering from incurable diseases. In contrast to some suggestions in our survey to include "chose to" or "decided to" within a descriptor, the authors of the German trial highlighted research countering the idea that suicide is a "free" and "rational" decision, and concluded that their findings supported use of the term "suizid". The study also found that use of specific descriptors increased their use subsequently, a finding that was replicated in this study with a number of those selecting a descriptor stating that it was due to its familiarity, including the term "committed suicide". Further research on the effect of English-language descriptors on attitudes and behaviour would be valuable. Additionally our survey highlights the need for investigation of language using a broader conceptual framework, which explores the inclusion of reference to the intent and suicide itself.

To conclude, variation in opinion exists amongst people affected by suicide regarding most phrases, often depending on contextual factors. Opinion about "commit suicide" was most divided. Both use of the phrase, and advice against use, were highly emotive for some participants. "Attempted suicide", "took their own life", "died by suicide" and "ended their life" were, however, considered acceptable by most participants, including those who considered "commit suicide" most appropriate. We would argue that academic and media guidelines should therefore promote the use of these phrases.

Supporting information

S1 File. Survey.
(DOCX)

S2 File. All responses (both complete and incomplete).
(DOCX)

S3 File. Responses by country: United Kingdom, United States of America and Australia.
(DOCX)

S4 File. Additional analysis relating to "committed suicide".
(DOCX)

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Research Involvement and Engagement

RESEARCH ARTICLE Open Access

Supported and valued? A survey of early career researchers' experiences and perceptions of youth and adult involvement in mental health, self-harm and suicide research

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Abstract

Background: Patient and public involvement (PPI) in mental health research, including self-harm and suicide research, is desirable (as with other health topics) but may involve specific challenges given the perceived sensitivity of the topic. This is particularly so when involving young people. We explore the experiences and perceptions of Early Career Researchers (ECRs) undertaking youth and adult involvement work in mental health, self-harm and/or suicide research. We consider current practice, barriers and facilitators.

Methods: An online survey of a convenience sample of ECRs ($N = 41$) undertaking research on mental health, self-harm and/or suicide. Questions examined the perceived value of involvement work, involvement methods used, funding availability and the extent to which researchers felt knowledgeable, supported and confident in their involvement activities. Descriptive statistics are presented with appropriate tests. Open-ended questions, related to barriers and facilitators for involvement work, were subjected to an inductive thematic analysis.

Results: Youth and adult involvement work were valued to a similar extent, though institutions were reported to value youth involvement to a lesser extent. Researchers' knowledge, confidence and support ratings were comparable for youth and adult involvement. The involvement methods used with young people and adults were also similar, with analysing data being the least popular method used and developing resources (e.g. information sheets) being the most popular method used. Less than a third of participants reported that funding was available for their research involvement activities. Barriers to involvement in research on mental health, self-harm and suicide were: ethical issues and perceived risk; real costs (in terms of money/time) versus perceived value; and the challenge of recruiting people. Facilitators to involvement work were: expert examples, expertise and guidelines; and investment in involvement work.

Conclusions: ECRs in the fields of mental health, self-harm and suicide are engaged in youth and adult involvement work. They value (find worthwhile) youth and adult involvement work to a similarly high extent, but feel their institutions may regard youth involvement slightly less highly than adult involvement. ECRs rate themselves as feeling similarly knowledgeable, confident and supported when doing involvement activities with both age groups. Nonetheless, significant barriers to involvement work on these topics are reported and are generally issues that need to be tackled at an institutional level (ethical/governance issues and lack of funding).

Keywords: Involvement, Engagement, Knowledge exchange, PPI, Mental health, Self-harm, Suicide, Young people

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Plain ENGLISH summary

Talking to people about mental health can be hard, but it is important that researchers involve people with mental health difficulties (including self-harm and suicidal behaviour) in their research. It may be particularly challenging to involve young people in research on these topics, but involvement activities can help make research more appropriate and user-friendly. We asked researchers at an early stage in their careers ('Early Career Researchers') about their experiences of involving young people and adults in their research on mental health, self-harm and/or suicide. Forty-one researchers completed an online survey.

The Early Career Researchers valued youth and adult involvement work to a similar extent, but they said that their universities valued youth involvement in research less than adult involvement. The researchers felt similarly knowledgeable, confident and supported in doing research involvement activities with young people and adults. Young people and adults were involved in research in similar ways. They were most often asked to develop research materials (such as participant information sheets), and least often involved in analysing research data. Fewer than one in three researchers had funding available for their involvement activities. The researchers said that barriers to involving people in research were: 1) the worry that people might be harmed or upset by such activities; 2) the financial cost and time spent on involvement activities; and 3) the challenge of finding people to be involved in the research. We suggest that Early Career Researchers need more help from universities to support their research involvement work, including better links with people in the community and more time and money.

'Public involvement' in research, defined by the National Institute for Health Research INVOLVE guidelines as *"research being carried out 'with' or 'by' members of the public"* [1] is increasingly a requirement for UK health research. Public involvement in research includes *"... working with research funders to prioritise research, offering advice as members of a project steering group, commenting on and developing research materials and undertaking interviews with research participants"* ([1], p 6). In contrast public 'engagement' is used to refer to providing and disseminating information and knowledge about/from research (though this can overlap and sometimes be used interchangeably with 'involvement'), and 'participation' refers to people taking part in a research study. [1]. For clarity, we use the term 'involvement' throughout, but distinguish youth involvement from adult involvement. This allowed us to identify any specific challenges experienced when trying to involve young people in research.

The importance of involvement in mental health research is recognised by researchers, research participants and stakeholders in the NHS and voluntary sector [2, 3]. The general public are stakeholders who hold valuable knowledge and expertise, and this includes young people. Well-planned public involvement work can: (i) focus research aims and methods, making research more relevant, (ii) enhance research participation (e.g. in marginalised groups), and (iii) lead to research impact ([1, 4]. In the field of mental health, public involvement in research can address stigma and raise awareness. Arguably, people have a democratic right to be involved in research which affects them (and which is often taxpayer funded). However, this work is frequently inadequately supported - being underfunded and undervalued [5]. Unfortunately, this work can also be seen as tokenistic by members of the public involved [6], and particularly young people [7].

Early Career Researchers (ECRs) can be broadly defined as researchers who have yet to secure a permanent academic post in a Higher Education Institution, and can include postgraduate students (Masters and Doctoral level), postgraduate and postdoctoral researchers (Assistants, Associates and Fellows) and newly appointed lecturers. ECRs are arguably at the vanguard of public involvement work in research, though little is known about their experiences or perceptions of undertaking such work. There is a need to understand current practice, successes and challenges in order to inform and support the research involvement work undertaken by this group.

Youth and adult involvement work is increasingly utilised in mental health research [8]. There is evidence from a longitudinal examination of the Mental Health Research Network study portfolio database (NIHR Clinical Research Network) that those studies that involved patients to a greater degree were more likely to have achieved their recruitment targets, and thus be regarded as successful [8]. There is also evidence of personal benefits to those who take part in involvement activities in mental health research, such as: (i) gaining knowledge, understanding, expertise and the development or refreshing of skills (e.g., communication skills, interpersonal skills), (ii) increased self-confidence and a sense of belonging and being valued, and (iii) and a reduction in personal fears and self-stigma (where an individual agrees with/internalizes negative public attitudes towards mental illness) [6, 9, 10]. Public involvement can enhance researcher knowledge and improve research delivery [5, 11]. Involvement work informing mental health research priorities has highlighted some interesting discrepancies between the priorities of services users compared to those of professionals (e.g. calls for more psychosocial research rather than biomedical research)

[12]. However, while the benefits of utilising service user perspectives when developing mental health services are often recognised, there is a tendency to overlook service users when planning research and setting its priorities [10].

Research evidence relating to youth involvement in mental health research is particularly scant. A qualitative study of young people involved in mental health research suggests that young people want to actively contribute *throughout* the research process and that meaningful research involvement was perceived as making a difference in ensuring research projects were relevant [13]. This study highlighted specific training needs for researchers in order to achieve this. Recently, it has been demonstrated that youth involvement in research can generate original, credible and useful findings that reflect both young people's perspectives and inform the extant literature. Examples include participatory research approaches in developing self-care strategies for mental health [14] and participant-researchers co-producing a Transition Preparation Programme for Child and Adolescent Mental Health Services (CAMHS) [15]. A commentary paper describing the experience of being a young participant-researcher within CAMHS highlighted that young people felt valued and gain confidence from meaningful, creative and well-supported involvement activities [16]. However, the authors also cautioned that researchers may underestimate the amount of time needed to effectively support young people to maximize their roles as co-researchers, citing, for example, recruitment and governance problems [15, 16]. Anecdotally, we have heard that involving young people in research on mental health, especially topics viewed as sensitive - such as suicide and self-harm - can be perceived as particularly 'risky', and thus challenging, to undertake. Through this study, we aimed to explore these challenges in more detail. Similar challenges have been documented when involving young people in alcohol and drug research [17]: professionals and services can act as gatekeepers and thus serve as barriers to involvement; it can be challenging to keep young people engaged with involvement activities and requires a flexible and sensitive approach.

The present study

Mental health research, including research into self-harm and suicide, is likely to present specific challenges to youth and adult involvement work (i.e. working with 'vulnerable' groups on topics deemed to be 'sensitive' in nature). The present study examines the perceptions of ECRs in these fields regarding youth and adult involvement. Specifically, we examine the experiences and perceptions of ECRs who have been involved in youth and/or adult involvement work in the field of mental health, including self-harm and suicide research, in order to: (i) determine the extent to which these ECRs feel that work in youth and adult involvement is valued, (ii) describe how ECRs in mental health involve young people and adults in research, and (iii) identify common barriers and facilitators in undertaking youth and adult involvement in their research. We hope to provide valuable and practical information about current practice, barriers and facilitators, with the aim of finding ways to better support youth and adult involvement work in mental health research.

Method

Participants

The survey was open to ECRs undertaking research in mental health, self-harm and/or suicide in the UK (a convenience sample). A total of 41 participants completed the survey. Due to the small research field and familiarity of those working in this area, no additional identifiable information was collected (e.g. age, gender, current institution). Status as an ECR was self-determined and thus included postdoctoral and postgraduate researchers (amongst others).

Design and procedure

The anonymous self-report questionnaires were administered online. Participants were recruited via e-mail listings, a link on a website for ECRs (Early Career Researchers Youth And Public engagement on Self-harm Network) and via social media. As such, the total number of potential participants reached is unknown. The survey was made available in February and March 2017. Ethical approval was given by the departmental Research Ethics Committee (January 2017).

Youth involvement in this study

'Youth Speak' were a mental health research advisory group operating between 2013 and 2017 at the lead author's institution (at the time of data collection). The members were aged between 14 and 24 years old and had contributed to a number of mental health research projects over the 4 years. The group was established upon the principle of developing a youth culture that promoted inclusiveness and collaboration, and as such the members were not asked about, or expected to disclose, their mental health difficulties.

The Youth Speak group were involved in the planning and content of a symposium for ECRs on youth and adult involvement in mental health research. The plans for the symposium were discussed at a Youth Speak meeting. Due to timing and financial constraints, the group members were not able to attend the symposium. Instead, we produced a short film presentation of the young people talking about their experiences of research involvement and engagement activities that was shown at the symposium. Ideally, it would have been advantageous for the Youth

Speak group members to attend the symposium, particularly as they considered teaching researchers (including ECRs) how to work effectively with young people to be an important part of their Youth Speak role. Informal feedback regarding the symposium suggested that the ECRs would also have welcomed the opportunity to meet and discuss research involvement with the Youth Speak group members.

Measures

The survey included closed- and open-ended questions about perceptions and experiences of youth and adult involvement in research. The survey questions were piloted at the symposium for ECRs engaged in research on mental health, self-harm and/or suicide (December 2016). Following piloting, a small number of changes were made to the survey questions, including the addition of a question about knowledge of youth and/or adult involvement activities undertaken by the respondents' employing institution and an open-ended question about what would facilitate youth and adult involvement work in research. The final survey included four sections. Note that questions were asked regarding youth and adult involvement separately, though no specific definition of youth versus adult (i.e. age range) was given, reflecting the broader lack of consensus regarding the definition of 'youth'. The survey questions and response options are given in Table 1.

We did not provide respondents with definitions of any of the terms used in the questions. For instance we did not define what was meant by the word 'value' in the questions asking the extent to which the respondents/their organisation/their department value youth/adult involvement. We anticipate that our respondents understood the use of the term 'value' as meaning 'held in high regard'/'seen of worthwhile pursuit', although it is possible that other interpretations (e.g. regarding monetary worth, or principles and beliefs held) were applied.

Data analysis

Quantitative descriptive statistics (analysed using SPSS V24 for Windows) are presented. Responses to open-ended questions concerning barriers and facilitators were analysed thematically using inductive coding. The coding mapped onto the questions asked, so that distinct 'barriers' themes and 'facilitators' themes were generated. The initial analysis was done by AJW and KB, with codes being reviewed and developed further by EN and RW, before the final coding was refined collectively by the group. To establish the reliability of the initial coding, 17 unlabelled extracts were presented alongside the theme descriptions to an independent coder, PR, who was blind to the original analysis and coded on their own. PR's coding was then compared to the original coding, with good reliability (the independent coder attributed 82.4% of the extracts to the same codes as the original coders). Following this, a final framework was synthesised from the previous themes, which was reviewed by all authors to ensure clarity.

Results

Participant details regarding research interests and experience are given in Table 2. The reported range of research experience was 1 to 13 years ($M = 5.41$; $SD = 3.34$). Thirty-four participants were able to state their current contract length. The majority of respondents ($n = 13$) held three-year contracts. This is likely a reflection of the high proportion of PhD students comprising our sample ($n = 20$; 48.8%). Only four respondents had permanent contracts. The primary research focus of participants was mental health, followed by suicide, self-harm, and 'other' ($n = 15$; 36.6%), which included research topics such as memory, prisons, and intervention development. Many ECRs had overlapping areas of research interest, indicated by selecting two or more options ($n = 18$; 43.9%).

Youth and adult involvement in Research

Participants' research interests were reflected in their research involvement work: this was primarily concerned with mental health, then suicide, self-harm and 'other' (see Table 2). The majority of participants had a supervisor or line manager who was also engaged in youth or adult involvement research activities. Similarly, most participants reported that their institution undertook such work.

The reported frequency ('never', 'rarely', 'sometimes', 'often', 'always') with which young people and adults were involved in the respondents' research and their institutions' research is compared in Fig. 1. Adult involvement was reported more frequently than youth involvement within the ECR's own work, whereas these values were more similar for institutions.

Table 3 summarises the value, support, confidence and knowledge ratings given by participants with respect youth and adult involvement work. Median ratings of the value of youth versus adult involvement work were the same for ' ECR values involvement' and 'department values involvement'. ECR confidence median ratings were also the same. A Wilcoxon Matched Pairs test showed that the participants rated youth and adult involvement to be similarly valuable ($Z = -1.14$, $p = 0.26$) despite the differences in the frequency of the groups being involved in work (see Fig. 1). For the majority of the remaining ratings, youth involvement work was rated less highly than adult involvement work, although these differences were non-significant ('ECR values *their* involvement' ($Z = -1.48$, $p = 0.14$); 'ECR feels supported' ($Z = -2.14$, $p = .03$), and 'ECR feels knowledgeable' ($Z = -.92$, $p = .36$)). It is worth noting that

Table 1 Survey questions and response options

	Question	Response options
Research and job details	Position/job title	Undergraduate student, Postgraduate taught Masters student, Postgraduate research Masters student, PhD student, Postgraduate researcher (research assistant/ associate post without PhD), Postdoctoral researcher (research associate/ fellow with PhD), Lecturer, Other (please state)
	Number of years of research experience in total	
	What is your research primarily concerned with? [a]	Mental health, Self-harm, Suicide, Other (please state)
	What is your youth/adult involvement work primarily concerned with? [a]	Mental health, Self-harm Suicide, Other (please state)
	Does your supervisor/line manager undertake youth and/or adult involvement work?	Yes, No, Don't know
	Does your institution(s) undertake youth and/or adult involvement work?	Yes, No, Don't know
Value of youth/adult involvement	To what extent do you personally feel that youth/adult involvement is valuable?	1 (not at all valuable) to 10 (extremely valuable)
	To what extent do you personally feel YOUR current youth/adult involvement work is valuable?	1 (not at all valuable) to 10 (extremely valuable)
	To what extent do you feel the organisation(s)/institution(s) you are associated with value youth/adult involvement?	1 (not at all valuable) to 10 (extremely valuable)
	To what extent do you feel the department(s) you are associated with value youth/adult involvement?	1 (not at all valuable) to 10 (extremely valuable)
Current youth and adult involvement in research	Please indicate all of the ways in which young people and/or adults are involved in your current work [a]	Identifying research topics, Prioritising research questions, Preparing research applications, Design of research, Management of research (e.g. steering/ advisory group), Developing participant information resources, Undertaking/analysing research (e.g. member of research team), Contributing to the reporting of the study report, Dissemination of research findings, Other (please state)
	How often are young people and/or adults are involved in YOUR work?	Never, Rarely, Sometimes, Often, Always
	How often are young people and/or adults are involved in YOUR ORGANISATION's work?	Never, Rarely, Sometimes, Often, Always, Don't know
Barriers and facilitators	What are the biggest barriers to increased youth and adult involvement in your research?	Free response

Table 1 Survey questions and response options *(Continued)*

	Question	Response options
	What would help you to better undertake youth and adult involvement work in your research?	Free response
	Is funding available for your youth and/or adult involvement work?	Yes No
	If yes, what is the source of this funding?	
	How confident do you feel when engaging with young people and/or adults during work related to mental health/self-harm/suicide?	1 (not at all) to 10 (extremely)
	How supported do you feel when engaging with young people and/or adults during work related to mental health/self-harm/suicide?	1 (not at all) to 10 (extremely)
	How knowledgeable do you feel when engaging with young people and/or adults during work related to mental health/self-harm/suicide?	1 (not at all) to 10 (extremely)

Note. For most questions, responses were given for youth involvement and adult involvement separately. The terms 'value', 'confident', 'supported' and 'knowledgeable' were not defined, therefore it was for individuals to interpret the terms themselves
[a]Respondents could select more than one response option

Table 2 Participant details

	Percentage (frequency)
Position/job title	
Undergraduate student	0.0% (0)
Postgraduate taught/research Masters student	9.8% (4)
PhD student	48.8% (20)
Postgraduate researcher	9.8% (4)
Postdoctoral researcher	19.5% (8)
Lecturer	9.8% (4)
Other	2.4% (1)
Research focus	
Mental health	65.9% (27)
Self-harm	29.3% (12)
Suicide	41.5% (17)
Other	36.6% (15)
Focus of youth/adult engagement and involvement work	
Mental health	61.0% (25)
Self-harm	24.4% (10)
Suicide	39.0% (16)
Other	34.0% (14)
Supervisor/line manager undertake youth and/or adult involvement work?	
Yes	70.7% (29)
No	12.2% (5)
Don't know	17.1% (7)
Institution(s) undertake youth and/or adult involvement work?	
Yes	82.9% (34)
No	2.4% (1)
Don't know	14.6% (6)

the range of responses here for youth involvement covered the full range of the scale, suggesting experiences were more varied. When ECRs were asked about their institutions' value of involvement, there was a significant difference between youth involvement (Mdn = 7.00) and adult involvement (Mdn = 8.00), ($Z = -2.88$, $p = .00$).

Participants reported the ways in which adults and young people were involved in their research projects (Table 4). Similar patterns were seen across types of involvement methods for both populations. However, higher frequencies were generally seen for adult involvement, as compared to youth involvement. This was particularly notable in methods such as identifying research topics and disseminating research. There were no significant differences between the frequencies of methods that were reportedly used for youth and adult involvement work (McNemar's tests for each method).

Analysing data was the least utilised method of both youth and adult involvement. Across both populations, developing resources was the most popular method. Additional methods reported (in an 'other' response option) were involving people in developing or giving feedback on research tools, and research involvement groups training other people in research involvement skills.

Funding

Less than a third of participants ($n = 13$, 31.7%) reported that funding was available for their research involvement activities. Sources included research councils/funding bodies (e.g. as part of doctoral grants) or internal university funds. Thus, despite limited funding, ECRs managed to conduct research involvement (with only some utilising a variety of funding sources).

Barriers and facilitators

A total of five main themes describing challenges (three themes) and facilitators (two themes) to youth and adult involvement work were identified in the open-ended

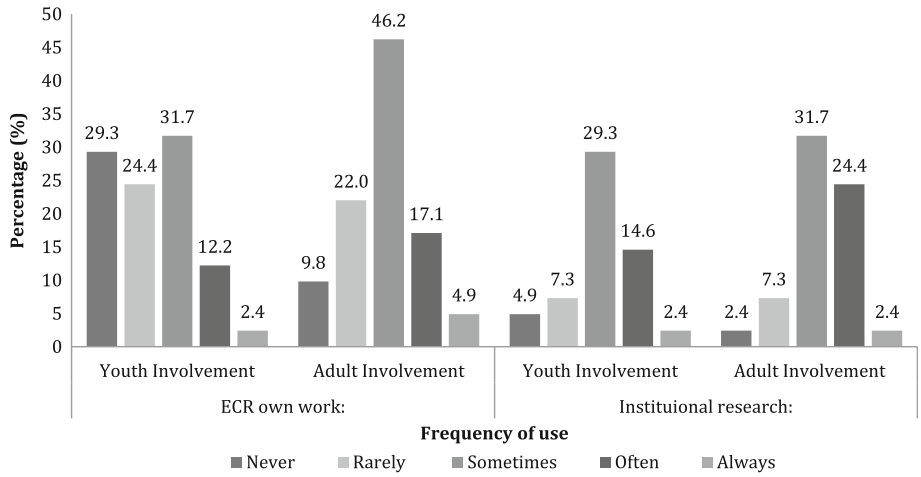


Fig. 1 Frequency of youth and adult involvement work reported for ECR and their institution *Note.* For the responses regarding frequency of involvement work within institutions, 41.5% of responses for youth involvement were 'don't know' and 31.8% of responses for adult involvement were 'don't know'

question responses. Two of these themes contained subthemes. The themes and subthemes identified are described below with example quotes.

Ethics and risk

Ethical approvals and access to young people/specific groups A key barrier to involvement work centred on getting ethical permission for work to be conducted, which could impact on the researchers' ability to access the groups for involvement activities, *"Ethics. Access to young people, as a student." (ID:36)*. Specific issues identified with ethical governance procedures included safeguarding concerns and length of time to secure approvals, *"Issues regarding consent/safeguarding" (ID:16); "Long ethics processes to contact people through the NHS" (ID:24).* Negotiating ethical issues within institutions was described as *"… costing a lot of time and effort to the researcher" (ID:4)*. Some respondents simply responded to the question of barriers to research involvement with a one-word answer *"ethics" (ID:02, ID:06)*, so it was unclear whether this referred to the process of gaining ethical approval for their involvement work, or referred to the broader ethical considerations at play. However, as noted by one respondent, excessive concerns about the riskiness of involvement activities in self-harm or suicide research appears to influence the ethics procedure they need to negotiate: *"Ethics committees are risk averse to the detriment of research and rather than weight up the implications of a study case by case, they try to manage the risk with blanket policies" (ID:04).*

Perceptions of risk involved Involvement work with young people and adults was described as 'risky' by several respondents, with groups with lived experience of self-harm and/or suicide being viewed as 'vulnerable' and involvement work potentially affecting well-being (*"… concern that talking about suicide will make them suicidal" [ID:25]*, *"Organisations aren't willing to engage for fear of perpetuating suicide" [ID:08]*). This was especially salient for work involving young people, *"Particularly for youth, I think they are grossly mis-underestimated. They are often thought to be too vulnerable to be involved." (ID:39).* These perceptions were reported to influence

Table 3 Perceived value, support, confidence and knowledge ratings relating to youth and adult involvement work

	Youth involvement				Adult involvement			
	Min	Max	Median	IQR	Min	Max	Median	IQR
ECR values involvement	5.0	10.0	10.0	8.0–10.0	4.0	10.0	10.0	9.5–10.0
ECR feels their involvement is valued	3.0	10.0	7.5	6.0–10.0	3.0	10.0	8.0	6.0–10.0
Institution values involvement	1.0	10.0	7.0	6.0–10.0	3.0	10.0	8.0	6.0–9.0
Department values involvement	2.0	10.0	7.0	5.5–10.0	3.0	10.0	7.0	6.0–9.5
ECR feels supported	1.0	9.0	6.0	4.0–7.0	1.0	10.0	7.0	4.0–8.0
ECR feels confident	1.0	10.0	7.0	5.3–8.0	3.0	10.0	7.0	6.0–8.0
ECR feels knowledgeable	1.0	10.0	6.0	5.0–8.0	3.0	10.0	7.0	5.0–8.0

Note. Higher scores indicate higher ratings of feeling valued, supported, confident and knowledgeable with regards to youth and adult involvement

Table 4 Methods of research involvement

	Youth (%)	Adult (%)
Identifying research topics	24.4	43.9
Prioritising research questions	24.4	34.1
Preparing applications	12.2	19.5
Study design	24.4	41.5
Management (e.g. advisory group)	24.4	39.0
Developing resources	31.7	46.3
Analysis	4.9	9.8
Contributing to reporting of study	14.6	19.5
Dissemination	26.8	46.3

both individuals involved in the research (e.g. supervisors) and organisations: "*My PhD supervising committee think that people who have attempted suicide should not be interviewed. They think I should interview stakeholders instead" (ID:01)*; *"Departments which have never had researchers with a focus on self-harm or suicide are disproportionately worried about perception of the research and of reputation issues" (ID:04).*

Real costs (in terms of money/time) versus perceived value

Costs in terms of *"time" (ID:18, ID:21)* and *"funding" (ID:40)*, incurred by involving young people and adults in the life-cycle of research, were identified. Though keen to undertake involvement activities, a lack of money for such work was a big issue for the ECRs: *"Money money money - if I had more funding I would include PPI in all my PhD studies. Unfortunately, I don't" (ID:20)*. These costs, alongside a perceived lack of benefit from involvement work, were highlighted as a barrier to youth and adult involvement in research. *"A lack of financial resources, support, and awareness about how valuable this involvement is to the target population and organisations." (ID:22).* The respondents indicated that research involvement is *"Not taken seriously" (ID:10)* and "*… is often not held in the same esteem as other research activities" (ID:5)*. There was thus a tension between ECRs undertaking (potentially costly) involvement work, when such work was not seen to be valuable at an institutional level: *"There is scant institutional support for putting this [PPI] into place and without this and without the funding to do it, it's very difficult to implement by ourselves." (ID:37).*

The challenge of recruitment

Several responses indicated that difficulties in recruiting young people and adults were a barrier to involvement work. Some responses reflected difficulties in recruitment generally in the field *"Recruitment of participants" (ID:34), "Finding the relevant people" (ID:16), "No links with societies, charities etc, therefore difficult recruitment …" (ID:7), "Reaching a representative enough group" (ID:29).* Others highlighted challenges regarding working with specific populations *"… I work with a population who by definition are ill, and so their own illness trajectory can get in the way for [these] individuals" (ID:9).*

Expert examples, expertise and guidelines

Several respondents indicated that they would find it easier to conduct involvement work if they had the opportunity to learn from others with more experience: *"Collaborations with experienced colleagues" (ID:7); "Access to learn from more experienced researchers about how they raise awareness of the opportunity for involvement, and the different ways in which the [y] involved people in their work outside of the traditional, steering group type set-up, which for me doesn't quite cut it." (ID:17)*. The merits of professional resources that could be used, such as training schemes and research involvement guidelines, were also highlighted *"Having a framework or model to base engagement on." (ID:15), "Possibly more training on engaging people on a sensitive topic such as suicide" (ID:8).*

Investment in involvement work needed

Practical resources, especially money Whilst costs were identified as one barrier to youth and adult involvement in research (see above), increasing resources was suggested to promote the practice of involvement work. Increasing the availability of financial resources was commonly mentioned: *"Funding specifically for this [involvement work]." (ID:16); "Grants!" (ID:3); "Small grants to help fund workshops" (ID:29); "Availability of funding at an early stage" (ID:40).* One respondent felt that research councils should do more to financially support involvement work, *"I think every funding council providing PhD funding should give each student a PPI pot of money" (ID:20)*. Other practical resources required to facilitate involvement activities included time (*"More dedicated time, to listen and incorporate young people's views." [ID:12]*) and technology (*"… e.g. virtual meetings by teleconference/videoconferencing and the facilities to do this" [ID:9])*.

Wider community support A factor noted by respondents as potentially facilitating youth and adult involvement in research was if involvement efforts were supported more by those in the wider community, *"If families and educational institutions support this involvement." (ID:25)*. The role that researchers may play in changing wider communities' behaviour and/or beliefs was noted, *"increasing gatekeepers' understanding of the importance of these topics (i.e. the extent of the problem*

of suicide and self-harm)" (ID:41). Improvement in the relationships between community groups and researchers was mentioned as a facilitative factor *"Improved links with the local community" (ID:4), "having a dedicated PPI lead with good links into local youth networks" (ID:30).* One respondent suggested *"A network that could facilitate access to young people and the public via existing groups without the need to specifically recruit them for your trial/study" (ID:14)* would be useful, with another noting the need for *"access to groups which are not NHS based" (ID:24)* for mental health involvement work.

A supportive culture within institutions Some participants indicated that their ability to conduct meaningful involvement work would be benefited if they received greater support for involvement projects from the organisations they work within, in ways unrelated to practical resources. A shift in culture was highlighted as being important at an individual level (i.e. more support from staff), the departmental level, and at a broader institutional level: *"My supervising committee understanding where I am coming from in my research, rather than putting up barriers." (ID:1); "My current department really does not support public engagement at all. Trying to change this!" (ID:39); "Openness to youth involvement in actual research process." (ID:35); "Research culture which values youth and public involvement" (ID:11).*

Discussion

This paper reports findings from a survey of ECRs regarding their perceptions and experiences of involving young people and adults in research on mental health, self-harm and/or suicide. The findings suggest that although involvement work is valued, researchers at an early stage in their career face particular - and potentially significant - barriers in undertaking this work. Some differences in involving young people compared to adults were apparent - for example, young people were reported to be involved in the ECRs' own research less frequently.

Perceived value of youth and adult involvement in research

ECRs considered youth and adult involvement in research to be valuable generally, as well as being valuable to their own research. They also reported that their institution and department appeared to value youth and adult involvement in research. However, a notable proportion of ECRs reported that their institution did not undertake involvement activities (or were not aware of such work). Ratings suggest that ECRs feel relatively well supported, confident and knowledgeable when undertaking youth and adult involvement in research. Although some ratings were lower for youth versus adult involvement, the only rating difference of significance was the perception of value that institutions gave to youth versus adult involvement (lower for youth). Youth involvement yields the same barriers as adult involvement, but may have additional barriers such as gatekeeping, ethical concerns about child involvement, and being considered a 'difficult to reach' population in general. It is also possible that young people are regarded as being less capable of making a valuable contribution to research, but this requires further exploration. It should be noted that most respondents had a supervisor or line manager who undertook youth and/or adult involvement, thus providing a potential source of expertise and support.

How ECRs involve young people and adults in research on mental health, self-harm and suicide

Both young people and adults were involved in research through similar methods across the research life cycle. Both groups were most frequently reported to be involved in developing research resources (such as participant information sheets) and dissemination of research findings. These are relatively discrete and time-limited activities within the lifespan of a research project (and arguably easier to manage and cheaper). The least often reported involvement activities for young people and adults were data analysis, preparing research applications and reporting the research (a more in-depth level of involvement along the co-production continuum) - tasks which possibly require more expert knowledge of research topics and academic processes. Youth and adult involvement in the analysis or reporting of research findings (for example, respondent checking and validation of themes in qualitative work) may not always be achievable or desirable, depending on the methodology. Indeed, this specific method might have a limited capacity within youth involvement (e.g. due to complexity of tasks and lack of research experience), however, arguably it is the responsibility of the researcher to make such activities accessible to the target audience. Public involvement in preparing research applications should arguably be more common practice given funding body PPI requirements, but it should be acknowledged that ECRs may not have been involved with their current research at such an early stage. Finally, compared to adults, young people were reported to be less frequently involved in identifying research questions, contributing to study design and in managing the research (in the form of an advisory committee, for example) - although our data do not speak to why this might be. If young people are not being involved in setting research questions and priorities, their views risk being ignored in the national youth mental health research agenda [12]. It might be that researchers are less inclined to engage with youth

involvement due to the additional steps needed to adjust tasks to meet the abilities, preferences or language needs of younger people.

A previous analysis of the types of involvement activities reported in applications to the National Research Ethics Service (NRES) also found that dissemination of research findings was the most frequently reported activity whereas analysis was the least frequently reported activity [3]. Young people involved in mental health research have expressed a desire to be involved in every stage of the research life-cycle [13] and at the far-end of the involvement/participation continuum children can be successfully supported as researchers in their own right through child-led research [18, 19]. Future research could explore ways of facilitating youth involvement in mental health research further, for example, identifying those parts of the research process in which young people can be involved and where youth involvement can lead to improvements [20].

Barriers and facilitators in undertaking youth and adult involvement in mental health, self-harm and suicide research

Barriers to involving young people and adults in research on mental health, suicide and self-harm were: 1) ethical issues and perceived risk (ethical approvals and access to young people/specific groups, perceptions of risk involved); 2) real costs (in terms of money/time) versus perceived value; and 3) the challenge of recruiting people. The barriers related to ethics and perceived risk may help explain why youth involvement was reported less frequently or why young people were less often involved in particular involvement activities (e.g. managing research). It is concerning to see that ethical considerations appear to be presenting a significant barrier to involvement in research, particularly in light of recent guidance from the Health Research Authority /INVOLVE, which state:

> *"You do not need to apply for ethical approval to involve the public in the planning or the design stage of research, for example helping to develop a protocol, questionnaire or information sheet, being a member of a research advisory group, or preparing an application for funding or ethical review, even when those people are approached for this role via the NHS … However, there are some situations where the involvement of the public may raise ethical concerns, for example, when they will be involved with collecting and analysing data, such as helping to analyse survey data, conducting interviews, facilitating focus groups or recruiting participants." (Health Research Authority / INVOLVE, 2016, p2-3).*

It is problematic if youth and adult involvement activity is not going ahead in mental health/self-harm/suicide research due to unwarranted ethical concerns, particularly as this is something that ECRs may not feel in a position to challenge or debate. It is important to emphasise that there is increasing research evidence that participating in research on self-harm and suicide does not have a detrimental effect on participant well-being. A recent meta-analysis of the impact of exposure to suicide-related content in research protocols indicates a reduction in suicidal ideation and behaviour after being exposed to suicide-related content or suicide assessment. Notably, this reduction was largest in young people [21] There is no reason to assume involvement in such research in an advisory capacity should be any different (though future research could usefully address this).

The second barrier identified relates to the practical costs (time and money) that undertaking involvement work can entail (balanced against the perceived benefits) and the third relates to the challenges involved in recruiting people to be involved in research. ECRs have a limited timeframe in which to complete their research and face many other competing research priorities. However, successful approaches to engaging young people in 'sensitive' involvement activities, for example in drug and alcohol research, requires a researcher to be flexible and young-person centred, and crucially takes time [17]. Nonetheless, within this context, the respondents highlighted potential ways in which to facilitate their youth and adult involvement work: expert examples, expertise and guidelines; and investment in involvement work (practical resources, especially money; wider community support; a supportive culture within institutions). In particular, funding needs were highlighted by ECRs – indeed, over two thirds of ECRs did not have access to funding to support their involvement activities. INVOLVE offer guidance regarding payment for PPI group members to compensate them for their time and expertise. It would be difficult for ECRs to adhere to these best practice guidelines without access to sufficient funds (e.g., where funding is not available, involvement activities may be reliant on people giving their time for free. Additionally, ECRs may be unable to cover travel costs incurred by involvement group member). This potentially magnifies already complex power imbalances, if some people (i.e. researchers) are being paid for their time and expertise, whilst others (i.e. PPI members) are not. The costs of involvement have previously been cited as a barrier to encouraging user involvement in mental health services [22], but there is evidence that the provision of small research development bursaries for PPI can support involvement activities and help develop this aspect of research [23]. However, much of the other support required could actually be provided at minimal

cost to institutions. There is ample published guidance on PPI, but perhaps more hands-on mentoring or discipline specific guidance is required, or even simply improved signposting to such resources. Some of this could be achieved by raising the profile of research involvement as a valuable research activity within higher education research – although this would require significant buy-in from institutions.

At a more individual level we would urge ECRs to think creatively about how to best achieve their research involvement aims, by utilising technology and social media (i.e. virtual involvement) and by networking and collaborating with research colleagues in their field(s). In order to act as drivers for change, ideally ECRs need the support of their supervisors, senior colleagues and institutions. There is an apparent lack of clarity regarding ethical and risk governance issues surrounding involvement work in mental health, self-harm and suicide research, which may pose a substantial barrier to youth and adult involvement in this research field. We would argue there is a need for more targeted guidance for involvement work in this area and improved access to (modest) financial support.

Limitations

The survey respondents constitute a highly selective and small sample, with an interest in youth and adult involvement work. Due to our recruitment strategy (social media) we do not know how many ECRs in mental health research chose not to participate. Future survey work could aim to recruit a larger sample who are not necessarily as invested in involvement work.

The terminology used to describe involvement work is confusing and used interchangeably (e.g. engagement, involvement, knowledge exchange, PPI). Although we attempted to be clear in our participant recruitment material and wording of questions, potential participants may not have considered themselves eligible to participate due to another term being used in their experience, or may not perceive the work they do to be involvement work (e.g. consulting an advisory committee). Again, the distinction between youth and adult involvement can also be variable and thereby impact how the two populations are considered.

Conclusion

The involvement of youth and adult populations in mental health, self-harm and suicide research is reported to be valuable and important by researchers at an early stage in their career. Through supportive institutions and working relationships with senior researchers, our data suggest that ECRs are building their confidence and ability to conduct involvement within their own research and long-term projects. However, improved signposting and resources (such as funding opportunities and recruitment strategies) are necessary to develop the research culture so that involvement is not considered simply as tokenistic.

In addition, we feel it is important to acknowledge the barriers which challenge those engaging with youth involvement, particularly around ethical concerns and perceived risks. Due to the pressing clinical relevance of advancing our understanding of mental health, self-harm and suicide amongst young people, it is important that their voices are heard within research. This can then lead to the development of future research which is applicable, relevant and accessible to these populations.

Abbreviations

ECRs: Early Career Researchers; NHS: National Health Service; NIHR: National Institute for Health Research; NRES: National Research Ethics Service; PPI: Patient and Public Involvement; UK: United Kingdom

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Availability of data and material

The dataset analysed during the current study is available from the corresponding author on reasonable request.

Authors' contributions

All the authors made substantial contributions to the conception and design of the study, and the acquisition, analysis and interpretation of data. All authors were involved in drafting the manuscript and have given final approval of the version to be published. All authors have agreed to be accountable for all aspects of the work.

Ethics approval and consent to participate

Ethics approval for the study was given by the School of Medicine, Pharmacy and Health Ethics Sub-committee at Durham University (Ref: ESC2/2016/PP04) on the 7th March 2017. All participants gave informed consent to take part in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Public Perceptions of Self-Harm—A Test of an Attribution Model of Public Discrimination

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Public Perceptions of Self-Harm—A Test of an Attribution Model of Public Discrimination

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This cross-sectional, questionnaire-based study applied Corrigan, Markowitz, Watson, Rowan, and Kubiak's (2003) attribution model of public discrimination toward individuals with mental ill-health to explore public perceptions of self-harm—an underresearched topic, given the size and scale of the problem of self-harm. Participants (community-based adult sample, $N = 355$, aged 18–67 years) were presented with 1 of 10, first-person, vignettes describing an episode of adolescent self-harm and completed self-report measures assessing dispositional empathy, familiarity with self-harm (professional; personal), perceived dangerousness, personal responsibility beliefs, emotional responses toward the person depicted in the vignette and helping/rejecting intentions. Vignettes were manipulated across conditions for the controllability of the stated cause (controllable; uncontrollable; unknown), stated motivation for self-harm (intrapersonal; interpersonal; unknown) and presentation format (video; text). Across the sample, attitudes were largely tolerant, with significantly higher levels of sympathetic than fearful or angry responding and significantly higher endorsement of helping responses than avoidance, segregative or coercive approaches. The manipulation of controllability of cause (controllable; uncontrollable), but not stated motivation (intrapersonal; interpersonal), was related to differences in cognitive, emotional or behavioral responding. Taken together, results were largely consistent with the attribution model, suggesting this may be a useful framework for understanding public perceptions of self-harm.

Keywords: self-harm, nonsuicidal self-injury, suicide, motivations, stigma

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Self-harm, defined as "self-injury or self-poisoning irrespective of the apparent purpose of the act" (National Institute for Health & Care Excellence, 2004, p. 6), remains a significant behavioral health concern. Engaging in self-harm affords people a means of coping with difficult experiences and can therefore be viewed as a behavioral manifestation of psychological distress (Chapman, Gratz, & Brown, 2006; Laye-Gindhu & Schonert-Reichl, 2005). As well as being indicative of intolerable internal experience, self-harm is one of the most robust predictors of death by suicide (Bergen, Hawton, Waters, Cooper, & Kapur, 2010); those with a history of self-harm are identified as a priority high-risk group in the National Suicide Prevention Strategy for England (Department of Health, 2012), given that "suicide risk among self-harm patients is hundreds of times higher than the general population" (Owens, Horrocks, & House, 2002, p. 193). The World Health Organization (2014) outlines suicide prevention as a global imperative.

While stigma is common in response to a variety of mental health concerns (e.g., schizophrenia, depression; Angermeyer, Matschinger, & Corrigan, 2004), to date there exists limited empirical data addressing public perceptions of

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self-harm. The extant literature is restricted both in scale and scope; the majority of studies only explore the attitudes and responses of health care professionals, with particular emphasis on nursing staff.

Hospital-based data demonstrates that self-harm is a leading cause of both presentation and acute medical admission to general hospital in the U.K. (Clements et al., 2016). However, these rates represent conservative "tip-of-the-iceberg" estimates of the extent of the behavior (McMahon et al., 2014; Townsend, 2014). Research from community samples indicates that rates of engagement with emergency medical services are low (Hawton, Rodham, Evans, & Weatherall, 2002; Madge et al., 2008; Whitlock, Eckenrode, & Silverman, 2006).

Given the notable impact of self-harm among community samples, coupled with low-levels of formal help seeking and presentation to services, public attitudes and helping/discriminating responses warrant investigation. The importance of understanding factors underpinning public responding is further amplified as presentation to medical services does not guarantee amelioration of, or support for, psychological distress; 50–60% of those who do attend hospital following self-harm are treated in an exclusively medical capacity, receiving no psychosocial assessment (Bennewith, Peters, Hawton, House, & Gunnell, 2005; Hawton et al., 2012), despite NICE guidance on the Longer Term Management of Self-Harm (National Collaborating Centre for Mental Health, 2012). Given the barriers to obtaining statutory support and the distress associated with self-harm, it is paramount to delineate factors associated with an increased propensity to help in community respondents—not least as initial disclosures tend to occur within informal, social networks, with help in the first instance sought from family and friends (Rowe et al., 2014). Understanding public perceptions of self-harm may be central to understanding barriers to informal support provision.

Public Attitudes and Helping

Self-harm remains "poorly understood" (Royal College of Psychiatrists, 2010, p. 6). Individuals are often blamed for their self-harmful behavior, with their acts often interpreted in a limited and stigmatized manner, frequently as "attention-seeking" and "manipulative" in nature (Long, Manktelow, & Tracey, 2013; McCann, Clark, McConnachie, & Harvey, 2007; Ross & Goldner, 2009). Self-harm can evoke strong emotional reactions, with disclosures eliciting responses of confusion, frustration, anger, fear, anxiety, discomfort, and even disgust (Heath, Toste, Sornberger, & Wagner, 2011; Long et al., 2013; Marzano, Adler, & Ciclitira, 2015).

Exploring this perception is important, not only because stigmatizing attitudes can have an adverse impact on individuals' wellbeing and psychological development, but because these attitudes can act as a barrier to help-seeking (Owens, Hansford, Sharkey, & Ford, 2016; Sirey et al., 2001); individuals who self-harm may be reluctant to seek help as they feel ashamed or have reservations as to how others may react. Negative attitudes not only dissuade individuals from seeking help but also lead to the withholding of helping behaviors (Heath et al., 2011; Owens et al., 2016).

The availability and provision of help is important, as social support can function as a protective factor for self-harm. Where help was available, Nock, Prinstein, and Sterba (2009) reported the cessation of progression from contemplation to behavior in 20.7% of non-suicidal self-injurious thoughts and 34.6% of suicidal thoughts. Help was operationalized as simply having someone to talk to. Thus, there is scope for wider provision of help and support—not just professional but also personal. It is, therefore, important to ascertain not only factors that may affect the interpretation of self-harmful behaviors, but also those that predict the provision or denial of a helping response. The literature suggests controllability of cause, with theoretical pertinence in attributional analysis (Weiner, 1980, 1985), and perceived motivations (Knowles, Townsend, & Anderson, 2013) may be key variables to consider.

Attribution Models of Public Discrimination

Weiner (1980, 1985) proposed a theoretical framework to explain the relationship between stigmatizing attitudes and discriminatory behavior. The attributional model is stated to "generalize over a variety of helping situations" (Weiner, 1980, p. 197) and asserts that in-

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creased attribution of controllability leads to decreased provision of help as well as increased rejecting behaviors; a desire for social distance. This attribution–behavior relationship is not direct. Rather, it is mediated by affective responses. Thus, the model predicts an attribution–affect–behavior process.

Corrigan, Markowitz, Watson, Rowan, and Kubiak (2003) applied Weiner's (1980, 1985) attribution model to provide a comprehensive theoretical account of public discrimination towards individuals with mental ill-health. The model proposes that three cognitive-emotional components determine helping/rejecting behavior: (a) the attribution process, (b) a danger appraisal process, and (c) the effects of familiarity (see Figure 1).

The model posits that causal attribution engenders inferences regarding personal responsibility (blame). The mediating mechanism of perceived personal responsibility precedes affective responses (e.g., anger; pity; fear) which, in turn, influence an individual's propensity to help/reject. Controllability of cause is associated with increased perceived personal responsibility, leading to anger and increased rejecting behavior. The converse is true; negative behaviors judged beyond the control of the individual are attributed to be outside their responsibility. This elicits responses of sympathy associated with an increased provision of helping. The second cognitive-emotional component is danger; increased perceived dangerousness (e.g., danger or threat to others) being positively associated with segregation and a desire for social distance. The model suggests this is due to elevated fear in the absence of a mediating attribution. The final component of the model is the effect of familiarity; increased familiarity (with the mental health condition concerned) being associated with decreased perception of dangerousness, fear, and rejecting behaviors.

Current Study

Initial empirical investigations provide support for an attribution process in responding to self-harm within health care staff professionals and trainees (Law, Rostill-Brookes, & Goodman, 2009; Mackay & Barrowclough, 2005; Wheatley & Austin-Payne, 2009). Further, there is some evidence that affective responses and personal responsibility beliefs are related to behavior responding in teaching professionals (Heath et al., 2011) and prison staff (Marzano et al., 2015). However, there is a dearth of research exploring factors influencing "general population" perceptions of self-harm. For example, while Law et al. (2009) included a comparison non-health-care group (physics/astronomy) this was a small ($n = 53$) and potentially homogenous student sample. The present study builds upon existing literature by applying Corrigan et al.'s (2003) model of public discrimination to explore attributions and affective/behavioral responding to adolescent self-harm behavior in a broad community sample. To the best of our knowledge, this is the first study that applies the theoretical framework to assess public perceptions of self-harm.

The study aims to extend understanding of responding to self-harm by considering the effect of motivation (reasons to engage in self-harm), as well as controllability of cause, on responsibility beliefs, affective responding and the endorsement of helping/discriminating be-

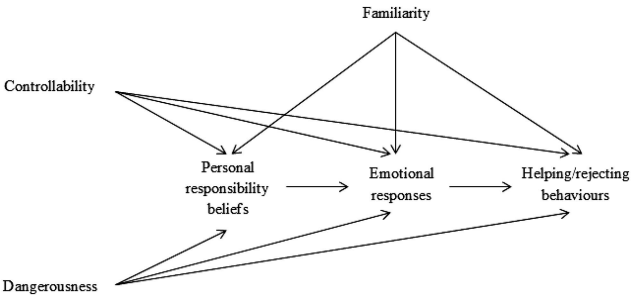


Figure 1. Familiarity, attribution, and danger appraisal processes in public discrimination toward individuals with mental ill-health. Model diagram adapted from Corrigan et al. (2003).

haviors. The perceived functionality of self-harm has been proposed as a key factor associated with negative or dismissive responding. Specifically, if self-harm is perceived to be socially motivated, the individual may be more likely to be blamed for their behavior and less likely to experience helping responses (Knowles et al., 2013). Consequently, it is hypothesized that interpersonal motivations, as well as increased controllability of cause, will lead to a propensity to attribute higher levels of personal responsibility for self-harm. In turn, and consistent with attribution theory, increased blame will be associated with lower levels of sympathetic responding and heightened endorsement of both fear and anger, resulting in reduced willingness to help and increased support for discriminatory strategies. In line with a danger appraisal process, it is hypothesized that there will be a positive correlation between perceived dangerousness and fear, in the absence of an association between danger and personal responsibility beliefs.

Finally, this study extends existing literature by refining the assessment of familiarity with self-harm, considering demographic factors and exploring the effect of dispositional empathy. Law et al. (2009) found that increased familiarity led to heightened levels of sympathy and reduced levels of anxiety, anger, and perceived dangerousness. However, Law and colleagues employed an additive measure of familiarity that did not distinguish between personal and professional awareness. While research suggests that increased professional familiarity with self-harm is associated with decreased negativity and worry (Wheatley & Austin-Payne, 2009), the relative contribution of personal and professional experience remains unclear. Therefore, the present study uses two measures of familiarity: personal and professional. Regarding empathy, it is hypothesized that those with higher levels of dispositional empathy will demonstrate higher endorsements of sympathetic responding and a willingness to help, whereas those lower in empathy will show a greater propensity to attribute personal responsibility and an increased endorsement of discriminatory responses. The effect of age will be explored, given that age is associated with dispositional empathy (Mestre, Samper, Frías, & Tur, 2009) and stigmatizing attitudes to mental illness (Corrigan et al., 2003; Eisenberg, Downs, Golberstein, & Zivin, 2009). In line with Corrigan et al. (2003), it is hypothesized that age will be negatively correlated with both fearful and angry responding

Method

Participants

Three hundred and fifty-five adult participants took part in the study (73.5% female). Participants ranged in age from 18–67 years ($M = 25.65$, $SD = 10.95$). Four participants (1.1%) did not indicate their age. The majority of the sample (84.5%) was white (2.3% black, 7.0% Asian, 2.8% mixed background, 3.4% unspecified/other). Participants were a self-selected sample responding to posters (e.g., university campuses, community settings), social media (e.g., Facebook), e-mail and word-of-mouth advertisement. A composite score was calculated to broadly assess the community sample's familiarity with self-harm (personal and professional familiarity; possible range 2–18). The majority of the sample (73.4%) had low-to-moderate familiarity with self-harm, (low, 2–6, $n = 134$; moderate, 7–12, $n = 125$).

Design and Procedure

All data were collected via a cross-sectional, community-based survey, administered online. The experiment followed a $2 \times 2 \times 2 + 2$ between-subjects design: controllability of cause (controllable vs. uncontrollable) $\times$ 2 stated motivation (intrapersonal vs. interpersonal) $\times$ 2 presentation type (text vs. video presentation) with hanging control comparisons (unknown cause/intent) in each presentation format (text vs. video). The inclusion of the comparison group is important, as many individuals who engage in self-harmful behaviors are unable to identify clear motivational antecedents, believe they behave without distinct motivation, or are ambivalent (Csipke & Horne, 2008; Royal College of Psychiatrists, 2010). Participants were randomly allocated to condition, via Randlink.

Vignette. Participants were presented with a hypothetical case vignette depicting a young female who has self-harmed:

> *My name is Megan and I am 17. I deliberately cut my arms legs and stomach with a sharp instrument, re-*

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sulting in wounds. [Stated cause, e.g., abuse; Stated motivation, e.g., relief]

The demographic characteristics and method of injury were guided by the literature and aimed to be representative of community self-harm (Bergen et al., 2010; Hawton, Harriss, & Rodham, 2010; Hawton et al., 2002; McDougall, Armstrong, & Trainor, 2010). The vignettes were manipulated on two dimensions: controllability of cause and stated motivation of self-harm. In line with the manipulation employed by Law et al. (2009), the stated cause of Megan's self-harm was either controllable ("I think I do this because I misuse drugs") or uncontrollable ("I think I do this because I was abused when younger").[1] Stated intention was either interpersonal communicative ("I wanted to show other people how desperate I was feeling") or intrapersonal affect-regulatory ("I wanted to get relief from a terrible state of mind"). The comparison condition was phrased, "I am not sure why I did this to myself. I do not know what I wanted to happen as a result."

The first-person nature of the vignette is a notable departure from the frequently employed third-person perspective. This aims to be a more ecologically valid depiction of how those outside the medical professions receive information regarding an individual's self-harm. Participants were randomized to receive either a traditional text-based vignette, or a video vignette. Improved reasoning, exploration and evaluation of the case information have been reported following the presentation of a video vignette, compared to following a written vignette containing the same information (Balslev, De Grave, Muijtjens, & Scherpbier, 2005). Furthermore, while written case histories may be more familiar to health care professionals, the video format is arguably closer to face-to-face disclosures within informal support networks. Therefore, it is important to explore any effect presentation format has on attributions, appraisals and affective and behavioral responses.

Vignettes were controlled for length, containing 43–45 words. No information regarding suicidal intent (or the lack thereof), nor psychiatric diagnosis, was provided. In video vignettes an 18-year-old actress delivered the lines with neutral tone and expression. The video was shot face-on from shoulders upwards, against a neutral background. Both video and text vignettes were hosted externally of the questionnaire, allowing participants to review the information at any stage during study completion.

Measures

Demographics. Age and gender demographics were captured.

Attributions, affective responding and helping behaviors. The Attribution Questionnaire (AQ27; Corrigan et al., 2003) is a 27-item self-report measure that assesses attitudes, emotions and behavioral responding (helping, avoidance, segregation, coercion). Designed to capture stigmatizing attitudes and discriminatory behaviors toward individuals with mental health difficulties, the measure contains 9, 3-item subscales: blame (e.g., "I would think that it was Megan's own fault that she is in the present condition"; $\alpha = 0.638$), anger (e.g., "I would feel aggravated by Megan"; $\alpha = 0.888$), pity[2] (e.g., "How much sympathy would you feel for Megan?"; $\alpha = 0.707$), help (e.g., "How certain would you feel that you would help Megan?"; $\alpha = 0.808$), danger ("I would feel unsafe around Megan"; $\alpha = 0.844$), fear (e.g., "How frightened of Megan would you feel?"; $\alpha = 0.889$), avoidance (e.g., "If I were an employer, I would interview Megan for a job [reverse scored]"; $\alpha = 0.818$), segregation (e.g., "I think it would be best for Megan's community if she were put away in a psychiatric hospital"; $\alpha = 0.817$) and coercion (e.g., "How much do you agree that Megan should be forced into treatment with his doctor even if she does not want to?"; $\alpha = 0.608$). Scores for each subscale are totaled. Higher scores indicate higher endorsement of construct.

Empathy. The Interpersonal Reactivity Index (IRI; Davis, 1980, 1983) gauges individual differences in dispositional empathy. Specifically, the 28-item measure assesses empathy associated with the distress of others, as op-

[1] An independent pilot study ($N = 50$), confirmed the validity of drug misuse and childhood abuse as controllable and uncontrollable causes, $Z = -6.087$, $p < .001$, $r = .609$.

[2] While the AQ27 uses the term *pity*, it may be more appropriate to consider this subscale to measure sympathetic concern ("How much concern would you feel for Megan?"; "How much sympathy would you feel for Megan?", "I would feel pity for Megan").

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posed to broader emotionality. The multidimensional index contains four subscales: perspective taking (e.g., "Before criticizing somebody, I try to imagine how I would feel if I were in their place"; $\alpha = .813$), fantasy (e.g., "When I watch a good movie, I can very easily put myself in the place of a leading character"; $\alpha = .812$), empathic concern (e.g., "When I see someone being taken advantage of, I feel kind of protective toward them"; $\alpha = .761$) and personal distress (e.g., "When I see someone who badly needs help in an emergency, I go to pieces", $\alpha = .812$).[3] Scores for each subscale are totaled. Higher scores indicate higher endorsement of construct.

Familiarity with self-harm. Participants rated their professional and personal familiarity with self-harm on a series of 9-point semantic differential scales. Professional familiarity was conceptualized as "experiences having been studied or having encountered them as part of your work". Personal familiarity was defined as "either people you know or yourself being affected by an experience." Higher scores indicate increased familiarity.

Data Analysis

Data were analyzed using SPSS V21 and PROCESS. Preliminary examinations of the data revealed that the overall level of missing values was extremely low, with a maximum of 1.4% missing data for a single item (IRI 28). However, 57 participants (16.05%) had missing data on at least one scale item, indicating that, while although the overall level of missing data is low, excluding missing data would restrict the sample size considerably. Little's Missing Completely at Random (MCAR) Test indicated that data was missing at random, $\chi^2(1879) = 1909.052$, $p = .309$. Replaced values for missing data were therefore computed using the expectation maximization (EM) technique. All analyses were conducted using this imputed data set.[4]

Personal and professional familiarity were assessed on single item measures. In all instances of missing data for familiarity and age, cases were excluded pairwise. All AQ27 and empathy subscales were non-normally distributed. Therefore, all analyses used do not rely on assumptions of normality.

First, the effect of vignette presentation style on personal responsibility beliefs, emotional responding and helping/rejecting behaviors was explored via a series of Mann–Whitney *U* tests. In the absence of substantial differences between the presentation groups, text and video vignette conditions were collapsed. Wilcoxon signed-ranks test were conducted to assess how positive or negative responding to self-harm was across the sample, before the relationships outlined in the attribution model were explored via a series of Spearman's Rho correlations. In line with the analysis outlined by Corrigan and colleagues (2003), the attribution model and effect of experimentally manipulating controllability of cause (controllable; uncontrollable) was tested via a series of bootstrapped OLS multivariate regression analyses. Here, Sobel tests were conducted to assess for mediation relationships. The relationships between stated motivation and AQ27 variables were explored to test assertions that the reasons for behavior engagement may be important in understanding public attitudes and responding. Finally, a series of Kruskal–Wallis tests compared endorsement of AQ27 variables between experimental conditions to explore the effect of presenting with unknown cause and motivation for self-harm.

Results

Preliminary Analyses

The effect of presentation style (video and text) of vignette on endorsement of blame, affective responses and propensity to help/reject. With the exception of pity, where those in the text condition report significantly higher levels of sympathy than those exposed to video vignettes ($U(353) = 13093.500$, $p = .006$, $r = -.145$), no difference in attributions of personal responsibility, emotional responses or endorsement of supportive or discriminatory behaviors were observed between participants in the text and video conditions. Given the absence of a difference in personal responsibility beliefs, and the mediating role of blame

[3] Cronbach's alphas for noncomputed data: fantasy, $\alpha = .813$; empathic concern, $\alpha = .762$; perspective taking, $\alpha = .812$; personal distress, $\alpha = .814$.

[4] In the noncomputed data, the direction of observed associations remained unchanged.

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outlined in attribution theory, the text and video conditions were collapsed.

Covariates. A series of Spearman's Rho correlations indicated that dispositional empathy was related to affective responses, perceived dangerousness, personal responsibility beliefs and helping/rejecting behaviors. (see Table 1).

Age was also related to responding. Older participants were less likely to blame Megan for her self-harm ($r(349) = -.114$, $p = .034$), as well as being less likely to perceive her as dangerous ($r(349) = -.184$, $p < .001$). They were also less angry ($r(349) = -.119$, $p = .026$) and were less likely to advocate for segregative ($r(349) = -.191$, $p < .001$) and coercive strategies ($r(349) = -.154$, $p = .004$). There was no significant relationship between age and sympathetic ($r(349) = .020$, $p = .704$) or fearful ($r(349) = -.103$, $p = .055$) emotional responses. Age was also not related to the intention to help Megan ($r(349) = .005$, $p = .928$), or avoid her ($r(349) = -.089$, $p = .098$). The relationships between age and both perceived dangerousness and tendency to advocate for segregation survived conservative Bonferroni correction. Age and dispositional empathy were therefore adjusted for in multivariate analyses testing the attribution model.

Public Attitudes to Self-Harm: How Positive Was Responding Toward "Megan"?

A series of Wilcoxon signed-ranks test were conducted to explore perceptions and responding across the whole sample. Overall, emotional responding was more positively than negatively valenced, with significantly higher levels of sympathetic responding relative to fearful ($Z = -14.758$, $p < .001$, $r = -.783$), or angry ($Z = -13.605$, $p < .001$, $r = -.722$), emotional reactions. Similarly, the endorsement of helping responses was significantly greater than the support for avoidant responses ($Z = -13.118$, $p < .001$, $r = -.696$), segregative ($Z = -16.280$, $p < .001$, $r = -.864$), and coercive approaches ($Z = -15.117$, $p < .001$, $r = -.802$; see Table 1).

Considering the relative endorsement of discriminatory behavior, segregation received significantly lower levels of support than both avoidance ($Z = -14.913$, $p < .001$, $r = -.0791$) and coercion approaches ($Z = -15.526$, $p < .001$, $r = -.824$). Avoidance received more support than coercion ($Z = -3.105$, $p = .002$, $r = -.165$).

Testing Corrigan et al.'s (2003) Attribution Model of Public Discrimination—Univariate Analyses

A series of Spearman rank correlations were calculated to examine the relationships between dependent variables across the sample. The pattern of associations were consistent with the public discrimination model (Corrigan et al., 2003); specifically, higher personal responsibility beliefs (blame) were associated with higher levels of fear and anger and lower levels of pity. In turn, increased fear and anger were related to decreased endorsement of direct helping and a propensity to endorse avoidance, segregation and coercive responding, whereas higher levels of pity were associated with an increased likelihood of helping and lower levels of discriminatory behaviors (see Table 1).

Testing Corrigan et al.'s (2003) Attribution Model of Public Discrimination—Multivariate Analyses

Variables were entered into a series of multivariate bootstrapped (1,000 sample) OLS regressions to explore the effect of experimentally manipulating controllability (controllable vs. uncontrollable cause) on cognitive, emotional and behavioral responding to self-harm. Analyses adjusted for age and empathy.

The effect of controllability, familiarity, and dangerousness on attributions of personal responsibility beliefs. Increased personal familiarity with self-harm led to reduced endorsement of blame. Increased perceived dangerousness was associated with increased blame. As hypothesized, there was a significant effect of controllability; when Megan's self-harm was associated with a controllable cause, participants endorsed higher levels of personal responsibility (blame; See Table 2, Equation 1).

The effect of controllability, familiarity, and dangerousness on emotional responses to self-harm. Contrary to the hypothesis, there was no direct effect of controllability or familiarity on sympathetic responding (Equation 2). Increased professional familiarity was associated with lower levels of anger. There was no

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Table 1
Spearman's Rho Correlations Exploring the Relationship Between Familiarity[a,b], AQ27 Variables and Dispositional Empathy[d], n = 355

	1^	2^	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Personal familiarity[a]															
2. Professional familiarity[b]	**.483**$^{***\Delta}$														
3. Personal responsibility[c]	**−.213*****	−.105*													
4. Dangerousness[c]	**−.240*****	−.118*	**.247*****												
5. Pity[c]	.086	.008	**−.323*****	−.140**											
6. Anger[c]	**−.202*****	**−.173****	**.399*****	**.549****	**−.303*****										
7. Fear[c]	**−.277*****	−.154**	**.205*****	**.816****	−.109*	**.551*****									
8. Help[c]	**.243*****	**.258*****	**−.169****	**−.332****	**.293*****	**−.428*****	**−.369*****								
9. Avoidance[c]	**−.361*****	**−.175*****	**.299*****	**.509****	**−.271*****	**.435*****	**.466*****	**−.434*****							
10. Segregation[c]	**−.260*****	−.069	**.260*****	**.648****	−.148**	**.470*****	**.594*****	**−.244*****	**.492*****						
11. Coercion[c]	**−.231*****	−.048	**.192*****	**.461****	−.127*	**.363*****	**.441*****	**−.167***	**.326*****	**.571*****					
12. Fantasy[d]	.070	.059	−.004	.073	.143**	.007	.051	.109*	−.038	−.035	.049				
13. Empathic concern[d]	.129*	**.175*****	**−.210*****	**−.181*****	**.364*****	**−.289*****	−.143**	**.387*****	**−.226*****	**−.190*****	−.081	**.293*****			
14. Perspective taking[d]	.127*	.090	−.102	−.125*	**.165****	**−.220*****	−.118*	**.238*****	**−.193*****	−.164**	−.120*	.118*	**.363*****		
15. Personal distress[d]	.118*	.056	−.099	**.185*****	.005	.169**	**.225*****	−.137**	.027	.095	.153**	**.207*****	.010	−.127*	
Median	5.00	3.00	11.00	6.00	21.00	8.00	5.00	21.00	11.00	4.00	11.00	18.00	21.00	19.00	12.00
(IQR)	(6.00)	(5.00)	(5.00)	(6.00)	(6.00)	(8.00)	(5.00)	(7.00)	(9.00)	(3.00)	(8.00)	(8.00)	(6.00)	(7.00)	(7.00)

Note. [a] Professional familiarity refers to "the experiences having been studied or having encountered them as part of your work". [b] Personal familiarity refers to "either people you know or yourself being affected by an experience". [c] As measured by AQ27. [d] As measured by IRI. **Bold** typeface indicates significant relationship when Bonferroni corrected ($p < .003$), $^{\wedge}n = 354$, $^{\Delta}n = 353$, two-tailed. IQR = interquartile range.
$^{*} < .05$. $^{**} < .01$. $^{***} < .001$.

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Table 2
Multivariate Regressions Exploring the Effect of Controllability, Familiarity and Dangerousness on Attributions of Blame and Emotional Responding (n = 274)

	Personal responsibility[e]	Pity[e]		Anger[e]		Fear[e]	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age	−.146* (−.105–−.014)	.129 (−.010–.100)	.091 (−.022–.089)	−.105* (−.110–.004)	−.063 (−.077–.021)	−.008 (−.029–.024)	−.007 (−.029–.024)
Empathy[a]	−.148* (−.090–−.007)	.281*** (.057–.145)	.242** (.044–.125)	−.100 (−.096–<.001)	−.057 (−.075–.020)	.028 (−.010–.029)	.029 (−.011–.030)
Controllability[b]	.234*** (1.134–−3.066)	−.074 (−1.623–.338)	.−.014 (−1.182–1.012)	.011 (−1.032–1.312)	−.057 (−1.728–.415)	.008 (−.451–.605)	.006 (−.445–.593)
Familiarity professional[c]	.006 (−.188–.220)	−.044 (−.262–.150)	−.042 (−.288–.152)	−.113* (−.448–−.025)	−.115* (−.468–−.034)	−.007 (−.105–.080)	−.007 (−.102–.080)
Familiarity personal[d]	−.151* (−.431–−.014)	.065 (−.135–.289)	.026 (−.177–.248)	−.072 (−.351–.085)	−.029 (−.242–.146)	−.062 (−.185–.010)	−.061 (−.186–.006)
Dangerousness[e]	.263*** (.123–.393)	−.036 (−.154–.095)	.032 (−.097–.157)	.549*** (.540–.842)	.474*** (.462–.752)	.859*** (.716–.865)	.857*** (.713–.861)
Personal responsibility[e]	—	—	−.259** (−.390–−.123)	—	.287*** (.228–.522)	—	.009 (−.060–.071)
R^2	.212	.091	.143	.379	.444	.767	.767
Model	$F(6, 262) = 11.780$, $p < .001$	$F(6, 262) = 4.352$, $p < .001$	$F(7, 261) = 6.236$, $p < .001$	$F(6, 262) = 26.686$, $p < .001$	$F(7, 261) = 29.808$, $p < .001$	$F(6, 262) = 143.430$, $p < .001$	$F(7, 261) = 122.510$, $p < .001$

Note. Standardized beta coefficient (bootstrapped 95% confidence interval), bootstrapped (1,000 sample) OLS regressions.
[a] Dispositional empathy as measured by IRI. [b] Controllability of stated cause—reference group noncontrollable cause (abuse). [c] "Academic or professional familiarity refers to the experiences having been studied or having encountered them as part of your work". [d] "Personal familiarity refers to either people you know or yourself being affected by an experience". [e] As measured by AQ27.
* < .05. ** < .01. *** < .001.

direct effect of personal familiarity or controllability on angry responding. However, increased levels of perceived dangerousness were related to greater anger toward Megan (Equation 4). Higher dangerousness was related to increased fear responses (Equation 6).

The mediating effect of personal responsibility beliefs on emotional responding. Attributions of personal responsibility were then added to these equations. As hypothesized, increased attributions of blame decreased levels of pity (Equation 3) and increased anger (Equation 5). However, there was no effect of blame on level of fearful responding (Equation 7). A series of Sobel tests were conducted to explore the indirect mediation relationships as outlined in Corrigan et al.'s (2003) attribution model.

Pity. While there was not a direct effect of controllability on pity, there was a significant indirect effect via personal responsibility beliefs; attributions of blame mediated between controllability and sympathetic responding ($Z = -2.862$, $p = .004$, $b = -.503$) such that participants who deemed the cause of Megan's behavior to be under her control were more likely to deem her personally responsible and, in turn, show less pity toward her. Similarly, blame mediated the relationship between dangerousness and pity ($Z = -2.977$, $p = .003$, $b = -.064$). This mediated effect suggests an attribution, as opposed to danger appraisal, process operating between perceived dangerousness and sympathetic emotions. While personal familiarity was significantly predictive of blame, attributions of responsibility did not mediate between degree of personal familiarity and level of sympathy ($Z = 1.928$, $p = .054$, $b = .057$). As professional familiarity was not predictive of blame, mediation relationships were not explored for pity, fear or anger.

Anger. Consistent with the attribution model, judgments of personal responsibility mediated between controllability of cause and anger ($Z = 3.318$, $p = .001$, $b = .788$) and perceived dangerousness and anger ($Z = 3.496$, $p = .001$. $b = .095$); participants who deemed Megan's behavior to be under her control or who considered Megan to be dangerous were more likely to believe that Megan was responsibility for her self-harm. In turn, increased levels of blame were associated with increases in anger toward Megan. Considering angry responses, personal familiarity had an indirect

effect on emotional responding, via personal responsibility beliefs ($Z = -2.068$, $p = .039$, $b = -.085$); increased personal familiarity was related to decreased blame. In turn, decreased blame was associated with decreased anger.

Fear. Personal responsibility beliefs were not predictive of fearful responding (Equation 7). A significant effect of danger in the absence of mediation suggests that, while attribution processes may explain angry and sympathetic responding, a danger appraisal process operates in anxious responding to self-harm. This is in line with Corrigan's assertion that danger is a key perception in fearful reactions.

Influences on helping behavior. First, the effects of controllability of cause, familiarity and perceived dangerousness on the endorsement of helping behaviors were examined (see Table 3, Equation 8). Increased professional familiarity with self-harm predicted higher direct helping, whereas there was no significant effect of personal familiarity. In line with Corrigan and colleagues' (2003) assertions, participants who deemed Megan to be more dangerous show a decreased propensity to help. However, in contrast with attribution theory, there was no direct effect of manipulating stated controllability on helping.

There was no direct effect of blame on propensity to help (Equation 9). Affective responses (pity, anger, fear) were then added in turn in Equations 10–13 to examine whether emotion mediates the effects of personal responsibility belief on propensity to help.

Pity. As predicted, pity was predictive of willingness to help (Equation 10). Pity also mediated between attributions of blame and the endorsement of helping ($Z = -3.108$, $p = .002$, $b = -.076$); participants who considered Megan responsible for her self-harming were less likely to feel sympathetically toward her. In turn, these lower levels of pity predicted decreased helping. The effects of perceived dangerousness ($Z = .508$, $p = .611$, $b = .009$) and professional familiarity ($Z = -.628$, $p = .530$, $b = -.020$) with self-harm were not mediated by sympathetic emotional responses. Similarly, there was no indirect effect of personal familiarity ($Z = .358$, $p = .720$, $b = .011$), or controllability of cause ($Z = -.222$, $p = .825$, $b = -.036$) via sympathetic responding.

Anger. As hypothesized, those who felt more anger toward Megan were less willing to assist her (Equation 11). There was a significant indirect effect of attributions of personal responsibility on helping, via anger ($Z = -3.462$, $p < .001$, $b = -.094$) and anger also mediated between dangerousness and helping responses ($Z = -4.056$, $p < .001$, $b = -.150$). There was no indirect effect of professional familiarity, personal familiarity or controllability.

Fear. In contrast with predictions, there was no effect of fear on willingness to help (Equation 12), therefore mediation relationships were not explored.

Influences on rejecting behavior—avoidance. As hypothesized, those with higher personal familiarity with self-harm were less inclined to avoid Megan (see Table 4). There was a significant effect of manipulating controllability such that those who believed the cause of Megan's self-harm was controllable were more likely to avoid her. Similarly, increased perceived dangerousness led to increased avoidance (Equation 14). There was no direct effect of personal responsibility beliefs on tendency to avoid (Equation 15).

Pity. In line with attribution theory, pity was negatively predictive of avoidance; those who felt sympathetically toward Megan were less likely to want to distance themselves from her (Equation 16). Results of Sobel tests indicated a small indirect effect of personal responsibility beliefs, via pity ($Z = 2.737$, $p = .006$, $b = .070$); those who deemed Megan less responsible for self-harming showed increased sympathetic responding toward her and, in turn, lower levels of avoidance. However, pity did not mediate the effect of perceived dangerousness ($Z = -.498$, $p = .617$, $b = -.009$) familiarity (personal, $Z = -.353$, $p = .724$, $b = -.010$; professional, $Z = .616$, $p = .538$, $b = .019$) or controllability ($Z = .219$, $p = .827$, $b = .033$) on avoidance.

Anger. Angry emotional responses predicted endorsement of avoidance behaviors (Equation 17) and mediated between attributions of blame and the propensity to avoid ($Z = 2.835$, $p = .005$, $b = .085$). There was also a significant indirect effect of perceived dangerousness on avoidance, via anger ($Z = 3.148$, $p = .002$, $b = .134$); those who believed Megan to be more dangerous showed increased levels of anger toward her and in turn higher levels of avoidance. However, anger did not mediate the effect of familiarity (personal, $Z = -.488$, $p = .625$, $b = -.013$; professional, $Z = -1.772$, $p = .076$, $b = -.055$), or controllability of

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Table 3
Multivariate Regressions Exploring the Effect of Controllability, Familiarity, dangerousness, Attributions of Blame and Emotional Responding on the Endorsement of Direct Helping Responses (n = 274)

	Helping[e]					
	(8)	(9)	(10)	(11)	(12)	(13)
Age	.056 (−.035–.081)	.057 (−.036–.080)	.031 (−.047–.073)	.037 (−.035–.074)	.056 (−.037–.087)	.021 (−.045–.067)
Empathy[a]	.219** (.028–.125)	.220*** (.023–.118)	.150* (.006–.104)	.202*** (.023–.112)	.224*** (.035–.130)	.152* (.007–.092)
Controllability[b]	.028 (−.719–1.285)	.026 (−.869–1.254)	.030 (−.782–1.205)	.007 (−.974–1.046)	.026 (−.771–1.269)	.016 (−.926–1.067)
Familiarity professional[c]	.221*** (.173–.554)	.221*** (.188–.570)	.233*** (.195–.578)	.184** (.125–.497)	.220** (.168–.566)	.204** (.166–.543)
Familiarity personal[d]	.062 (−.097–.284)	.064 (−.087–.315)	.057 (−.109–.282)	.055 (−.111–.291)	.057 (−.132–.306)	.047 (−.144–.267)
Dangerousness[e]	−.249*** (−.370–−.116)	−.251*** (−.372–−.121)	−.261*** (−.366–−.153)	−.098 (−.235–.035)	−.148 (−.390–.083)	−.092 (−.317–.155)
Personal responsibility[e]	—	.011 (−.144–.136)	.086 (−.052–.217)	.104 (−.029–.224)	.012 (−.128–.151)	.140* (<.001–.270)
Pity[e]	—	—	.291*** (.161–.441)	—	—	.236*** (.107–.355)
Anger[e]	—	—	—	−.324*** (−.349–−.140)	—	−.236** (−.307–−.074)
Fear[e]	—	—	—	—	−.121 (−.375–.115)	−.064 (−.361–.164)
R^2	.197	.197	.269	.255	.200	.300
Model	$F(6, 262) = 10.682$, $p < .001$	$F(7, 261) = 9.127$, $p < .001$	$F(8, 260) = 11.971$, $p < .001$	$F(8, 260) = 11.129$, $p < .001$	$F(8, 260) = 8.129$, $p < .001$	$F(10, 258) = 11.042$, $p < .001$

Note. Standardized beta coefficient (bootstrapped 95% confidence interval), bootstrapped (1,000 sample) OLS regressions.
[a] Dispositional empathy as measured by IRI. [b] Controllability of stated cause—reference group noncontrollable cause (abuse). [c] "Academic or professional familiarity refers to the experiences having been studied or having encountered them as part of your work". [d] "Personal familiarity refers to either people you know or yourself being affected by an experience". [e] As measured by AQ27.
* < .05. ** < .01. *** < .001.

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Table 4
Multivariate Regressions Exploring the Effect of Controllability, Familiarity, Dangerousness, Attributions of Blame and Emotional Responding on the Endorsement of Avoidance Responses (n = 274)

	Avoidance[e]					
	(14)	(15)	(16)	(17)	(18)	(19)
Age	−.017 (−.070–.054)	−.008 (−.068–.063)	.010 (−.060–.068)	.005 (−.065–.068)	−.009 (−.070–.055)	.016 (−.051–.068)
Empathy[a]	−.154** (−.122–−.026)	−.144** (−.120–−.025)	−.098* (−.095–.001)	−.132* (−.111–−.018)	−.140** (−.115–−.022)	−.091 (−.090–<.001)
Controllability[b]	.232*** (1.676–4.094)	.217*** (1.451–3.972)	.214*** (1.505–3.918)	.228*** (1.684–4.121)	.217*** (1.618–4.025)	.225*** (1.690–3.964)
Familiarity professional[c]	.021 (−.179–.264)	.021 (−.146–.263)	.013 (−.185–.252)	.045 (−.117–.317)	.020 (−.203–.267)	.032 (−.139–.296)
Familiarity personal[d]	−.205** (−.662–−.189)	−.196** (−.657–−.151)	−.191** (−.624–−.151)	−.189** (−.644–−.134)	−.204*** (−.704–−.153)	−.198*** (−.649–−.170)
Dangerousness[e]	.481*** (.460–.854)	.463*** (.437–.830)	.470*** (.469–.808)	.364*** (.293–.686)	.589*** (.539–1.082)	.548*** (.492–1.019)
Personal responsibility[e]	—	.066 (−.098–.287)	.016 (−.167–.233)	.006 (−.180–.189)	.067 (−.092–.283)	−.021 (−.212–.150)
Pity[e]	—	—	−.193** (−.447–.112)	—	—	−.157* (−.407–−.040)
Anger[e]	—	—	—	.209** (.081–.362)	—	.168** (.036 −.332)
Fear[e]	—	—	—	—	−.146 (−.548–.111)	−.186 (−.574–.052)
R^2	.410	.414	.446	.438	.419	.466
Model	$F(6, 262) = 30.395$, $p < .001$	$F(7, 261) = 26.321$, $p < .001$	$F(8, 260) = 26.128$, $p < .001$	$F(8, 260) = 25.346$, $p < .001$	$F(8, 260) = 23.417$, $p < .001$	$F(10, 258) = 22.481$, $p < .001$

Note. Standardized beta coefficient (bootstrapped 95% confidence interval), bootstrapped (1,000 sample) OLS regressions.
[a] Dispositional empathy as measured by IRI. [b] Controllability of stated cause—reference group noncontrollable cause (abuse). [c] "Academic or professional familiarity refers to the experiences having been studied or having encountered them as part of your work". [d] "Personal familiarity refers to either people you know or yourself being affected by an experience". [e] As measured by AQ27.
* < .05. ** < .01. *** < .001.

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cause ($Z = -1.066$, $p = .287$, $b = -.149$) on avoidance.

Fear. There was no direct effect of fear on propensity to avoid (Equation 18), therefore mediation relationships were not explored.

Influences on rejecting behavior—coercion. Those with higher levels of personal familiarity with self-harm demonstrated a reduced propensity to support coercive strategies, whereas increased perceived dangerousness was associated with an increased willingness to enforce treatment (see Table 5). The effect of dangerousness on coercion was not mediated by aversive emotional responding (fear, $Z = 1.288$, $p = .198$, $b = .137$; anger, $Z = 1.605$, $p = .109$, $b = .062$). There was no direct effect of controllability, professional familiarity (Equation 20), personal responsibility beliefs (Equation 21) or affective responding (Equations 22–25) on tendency to endorse coercion. Mediation relationships were therefore not explored.

Influences on rejecting behavior—segregation. Individuals with personal experience of self-harm demonstrated a reduced willingness to support segregative strategies. Those with higher professional familiarity were higher in endorsement of segregation (see Table 6, Equation 26). Conversely, those who deemed Megan to be dangerous showed a greater propensity to segregate. There was no effect of personal responsibility beliefs (Equation 27) or pity (Equation 28) on endorsement of segregation. Participants who felt anger toward Megan demonstrated increased support for segregative strategies (Equation 29). Sobel tests indicated an indirect effect of blame, via anger ($Z = 2.9536$, $p = .003$, $b = .050$); those who believed Megan to be personally responsible for her self-harm showed higher levels of anger toward her and, in turn, greater support for segregative strategies. Anger did not mediate between controllability ($Z = -1.076$, $p = .282$, $b = -.087$) or familiarity (personal, $Z = -.491$, $p = .623$, $b = -.008$; professional, $Z = -1.805$, $p = .071$, $b = -.032$) and the propensity to endorse segregation. Results of Sobel tests indicate that the effect of perceived dangerousness on segregative behaviors operates both directly and indirectly through anger ($Z = 3.309$, $p < .001$, $b = .079$) and fear ($Z = 2.800$, $p = .005$, $b = .176$). This is consistent with a danger appraisal process.

The Effect of Motivation for Self-Harm on Blame, Affective Responding, and Propensity to Help or Reject

A series of bootstrapped OLS regressions were conducted in order to explore whether stated motivations (interpersonal vs. intrapersonal) were related to cognitive, emotional or behavioral responding, when adjusting for age and dispositional empathy. Stated motivation was not predictive of personal responsibility beliefs ($b = .017$, $p = .786$; Model, $F(3, 267) = 4.378$, $p = .005$), affective responses (pity, $b = .037$, $p = .531$: Model, $F(3, 267) = 8.578$, $p < .001$); anger, $b = .013$, $p = .823$: Model, $F(3, 267) = 3.101$, $p = .027$; fear, $b = .055$, $p = .386$: Model, $F(3, 267) = 1.818$, $p = .144$), helping ($b = .024$, $p = .681$; Model, $F(3, 267) = 6.200$, $p < .001$) or discriminatory behaviors (avoidance, $b = .021$, $p = .714$: Model, $F(3, 267) = 3.644$, $p = .013$; segregation, $b = .028$, $p = .636$: Model, $F(3, 267) = 4.934$, $p = .002$; coercion, $b = .038$, $p = .513$: Model, $F(3, 267) = .699$, $p = .554$). Given the lack of associations with key variables, motivations were not entered into multivariate analyses of the attribution model.

Blame, Perceived Dangerousness, Affective Responding and Propensity to Help or Reject in the Absence of Information Regarding Motivation and Cause of Self-Harm

A series of Kruskal-Wallis tests were conducted to explore the effect of reporting uncertain motivation and cause of self-harm on cognitive, emotional and behavioral responding. Participants in the comparison group (unknown cause/unknown motivation) were less likely to consider Megan responsible than those in the controllable cause/interpersonal intent condition. The same pattern of difference was also observed between comparison and controllable/intrapersonal groups. However, this difference failed to reach statistical significance ($U = 2211.500$, $Z = -1.940$, $p = .052$, $r = -.159$).

The comparison group were lower than both groups with controllable stated cause in endorsement of avoidance. There was no difference in avoidance between groups with a stated

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Table 5
Multivariate Regressions Exploring the Effect of Controllability, Familiarity, Dangerousness, Attributions of Blame and Emotional Responding on the Endorsement of Coercive Responses (n = 274)

	Coercion[e]					
	(20)	(21)	(22)	(23)	(24)	(25)
Age	−.056 (−.081–.025)	−.044 (−.079–.029)	−.038 (−.070–.032)	−.037 (−.071–.032)	−.043 (−.077–.030)	−.033 (−.069–.037)
Empathy[a]	.020 (−.036–.052)	.033 (−.034–.056)	.049 (−.028–.063)	.040 (−.030–.059)	.029 (−.036–.053)	.045 (−.027–.061)
Controllability[b]	−.020 (−1.345–.926)	−.040 (−1.492–.691)	−.041 (−1.518–.653)	−.034 (−1.337–.799)	−.041 (−1.574–.686)	−.036 (−1.568–.735)
Familiarity professional[c]	.073 (−.080–.374)	.073 (−.090–.362)	.070 (−.085–.362)	.086 (−.049–.402)	.074 (−.092–.359)	.083 (−.076–.388)
Familiarity personal[d]	−.186** (−.557–−.110)	−.173* (−.522–−.082)	−.172** (−.530–−.074)	−.170** (−.524–−.085)	−.164* (−.500–−.049)	−.162* (−.509–−.046)
Dangerousness[e]	.422*** (.338–.606)	.400*** (.300–.586)	.402*** (.310–.575)	.344*** (.228–.540)	.277* (.020–.557)	.250* (.020–.518)
Personal responsibility[e]	—	.085 (−.043–.227)	.068 (−.069–.218)	.051 (−.101–.202)	.084 (−.046–.232)	.046 (−.085–.204)
Pity[e]	—	—	−.065 (−.222–.058)	—	—	−.041 (−.213–.098)
Anger[e]	—	—	—	.118 (−.017–.225)	—	.094 (−.056–.213)
Fear[e]	—	—	—	—	.144 (−.079–.477)	.124 (−.110–.435)
R^2	.234	.243	.246	.251	.248	.255
Model	$F(6, 262) = 13.579$, $p < .001$	$F(7, 261) = 11.961$, $p < .001$	$F(8, 260) = 10.631$, $p < .001$	$F(8, 260) = 10.869$, $p < .001$	$F(8, 260) = 10.701$, $p < .001$	$F(10, 258) = 8.854$, $p < .001$

Note. Standardized beta coefficient (bootstrapped 95% confidence interval), bootstrapped (1,000 sample) OLS regressions.
[a] Dispositional empathy as measured by IRI. [b] Controllability of stated cause—reference group noncontrollable cause (abuse). [c] "Academic or professional familiarity refers to the experiences having been studied or having encountered them as part of your work". [d] "Personal familiarity refers to either people you know or yourself being affected by an experience". [e] As measured by AQ27.
* < .05. ** < .01. *** < .001.

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Table 6
Multivariate Regressions Exploring the Effect of Controllability, Familiarity, Dangerousness, Attributions of Blame and Emotional Responding on the Endorsement of Segregative Responses (n = 274)

	Segregation[e]					
	(26)	(27)	(28)	(29)	(30)	(31)
Age	−.138** (−.075–−.017)	−.122** (−.070–−.012)	−.114** (−.066–−.009)	−.109* (−.064–−.005)	−.120** (−.070–−.012)	−.105* (−.065–−.004)
Empathy[a]	−.126** (−.064–−.005)	−.111* (−.059–−.004)	−.089* (−.050–−.001)	−.099* (−.056–−.003)	−.119* (−.058–−.006)	−.096* (−.050–−.005)
Controllability[b]	−.024 (−.834–.509)	−.049 (−1.041–.379)	−.050 (−1.058—2.85)	−.037 (−.936–.380)	−.051 (−1.069–.298)	−.041 (−.945–.397)
Familiarity professional[c]	.109* (.005–.279)	.108* (.009–.272)	.105* (.003—2.73)	.133* (.031–.312)	.110* (.013–.283)	.129* (.046–.312)
Familiarity personal[d]	−.129* (−.315–−.019)	−.113 (−.288–.013)	−.111 (−.278–.011)	−.107 (−.276–.004)	−.097 (−.266–.034)	−.093 (−.263–.032)
Dangerousness[e]	.605*** (.349–.590)	.577*** (.334–.570)	.580*** (.339–.553)	.476*** (.265–.486)	.352* (.089–.501)	.298* (.042–.426)
Personal responsibility[e]	—	.105 (−.022–.183)	.082 (−.041–.177)	.044 (−.072–.143)	.103 (−.018–.187)	.040 (−.077–.135)
Pity[e]	—	—	−.092 (−.183–.033)	—	—	−.047 (−.159–.071)
Anger[e]	—	—	—	.213** (.036–.214)	—	.179* (−.002–.210)
Fear[e]	—	—	—	—	.263 (−.027–.449)	.228 (−.040–.436)
R^2	.446	.454	.462	.480	.471	.493
Model	$F(6, 262) = 35.104$, $p < .001$	$F(7, 261) = 31.051$, $p < .001$	$F(8, 260) = 27.870$, $p < .001$	$F(8, 260) = 29.957$, $p < .001$	$F(8, 260) = 28.886$, $p < .001$	$F(10, 258) = 25.124$, $p < .001$

Note. Standardized beta coefficient (bootstrapped 95% confidence interval), bootstrapped (1,000 sample) OLS regressions.
[a] Dispositional empathy as measured by IRI. [b] Controllability of stated cause—reference group noncontrollable cause (abuse). [c] "Academic or professional familiarity refers to the experiences having been studied or having encountered them as part of your work". [d] "Personal familiarity refers to either people you know or yourself being affected by an experience". [e] As measured by AQ27.
* < .05. ** < .01. *** < .001.

uncontrollable cause and the unknown cause/motivation comparison group (see Table 7). Those in the comparison group were also less willing to endorse coercive strategies than those in any other condition.

Discussion

The current study explored the effect of stated motivations and controllability of cause on public perceptions of self-harm, specifically personal responsibility beliefs, emotional responses and the propensity to help and reject. In line with Corrigan et al. (2003) our results indicate that controllability of cause and perceived dangerousness led to increased blame, whereas personal familiarity led to reduced blame. While no evidence was found for a direct effect of either controllability of cause or familiarity (personal or professional) on sympathetic or angry responding, personal responsibility beliefs (blame) had both a direct effect on these emotions and mediated the relationship between controllability and affect. Blame also mediated between personal familiarities with self-harm and anger.

Results indicate a direct effect of dangerousness on fear; those who believed Megan to be a risk to others reported more fear toward her. In contrast to sympathetic and angry emotions, where personal responsibility beliefs mediate between perceived dangerousness and affective responding, blame was not predictive of fearful responding. A significant effect of danger in the absence of mediation suggests that, while attribution processes may explain angry and sympathetic responding, a danger appraisal process operates in anxious responding to self-harm. This is consonant with Corrigan et al.'s (2003) assertion that danger is a key perception in fearful reactions. When considering individual differences, subscales of dispositional empathy were differentially associated with personal responsibility beliefs, perceived dangerousness, emotional responding and endorsement of helping and rejecting behaviors. Further, familiarity with self-harm was related to attributions, emotional responses and helping/rejecting behaviors. Considering demographic factors, older participants were less likely to blame Megan for her self-harm, as well as being less likely to perceive her as dangerous. They were also less angry and less likely to advocate for segregative and coercive strategies. This suggests that individual differences, as well as situational factors, are important influences in appraisal processes related to self-harm.

Professional, but not personal, familiarity with self-harm predicted willingness to help. This divergent pattern of associations highlights the importance of not adopting a summative account of global familiarity. Future research could extend this by not only assessing professional familiarity and personal familiarity independently but also considering the nature or quality of this contact. As predicted, increased perceived dangerousness led to lower helping. However, in contrast to the public discrimination model, there was no direct effect of controllability on helping in response to self-harm. As hypothesized, increased pity led to increased helping, whereas increased anger was associated with a reduced propensity to help. Pity and anger both mediated between blame and help provision. In contrast with hypotheses, there was no effect of fear on willingness to help.

In avoidance, segregation and coercion, those with personal familiarity of self-harm demonstrate a reduced propensity to endorse discriminatory behaviors. In each case, dangerousness also predicted unhelpful responses. In avoidance, in line with the public discrimination model, those who believed the cause of Megan's self-harm was controllable were more likely to avoid her. However, there was no direct effect of controllability in coercion or segregation. There was no direct effect of personal responsibility beliefs on tendency to avoid, coerce and segregate; in avoidant responding, there was an indirect effect of blame, via both pity and anger, and in segregation, anger mediates between personal responsibility beliefs and behavioral responding. Importantly, a different pattern of relationships is observed in coercion; there was no effect of affective responding (fear, anger, pity) on tendency to endorse enforced treatment. Furthermore, while anger mediates between perceived dangerousness and avoidance, segregative and direct helping responses, the effect of dangerousness on endorsement of coercive responses is unmediated by aversive emotional responses. This suggests that a danger appraisal process operates in terms of coercion, whereas avoidance and segregation depend upon an attribution process.

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Table 7
Blame, Affective Responding and Propensity to Help—Comparing Endorsement Between Experimental Conditions, N = 355

	(1) Unknown cause/ motivation		(2) Uncontrollable/ Intrapersonal		(3) Controllable/ Intrapersonal		(4) Uncontrollable/ Interpersonal		(5) Controllable/ Interpersonal			
	n = 81		*n* = 65		*n* = 67		*n* = 75		*n* = 67			
	Mdn	(IQR)	Mdn	(IQR)	Mdn	(IQR)	Mdn	(IQR)	Mdn	(IQR)	χ^2	Significant differences (r)
Personal responsibility[a]	11.000	(5.000)	11.000	(5.000)	13.000	(6.000)	11.000	(5.000)	13.000	(7.000)	18.288**	1 < 5 (−.206); 2 < 5 (− .279); 4 < 5 (−.269); 2 < 3 (−.224); 4 < 3 (−.223).
Dangerousness[a]	6.000	(5.000)	6.000	(7.000)	7.000	(6.000)	6.000	(6.000)	7.000	(7.000)	5.504	—
Pity[a]	21.000	(6.000)	21.000	(5.500)	21.000	(7.000)	21.000	(6.000)	20.000	(6.000)	3.154	—
Anger[a]	7.000	(8.000)	7.000	(8.000)	9.000	(9.000)	8.000	(9.000)	8.000	(11.000)	1.926	—
Fear[a]	4.000	(3.500)	5.000	(6.000)	5.000	(5.000)	5.000	(5.000)	5.000	(5.000)	6.069	—
Help[a]	22.000	(7.000)	21.000	(5.500)	21.000	(6.000)	21.000	(7.000)	22.000	(7.000)	1.429	—
Avoidance[a]	11.000	(9.000)	10.000	(8.500)	14.000	(10.000)	10.000	(8.000)	14.000	(9.000)	29.107***	1 < 3 (−.249); 1 < 5 (−.308); 2 < 3 (−.264); 4 < 3 (−.270); 2 < 5 (− .329); 4 < 5 (−.325).
Segregation[a]	3.000	(2.000)	4.000	(4.000)	4.000	(5.000)	5.00	(4.000)	4.000	(4.000)	6.384	—
Coercion[a]	9.000	(6.500)	11.000	(8.500)	12.000	(6.000)	11.000	(7.000)	12.000	(8.000)	12.549*	1 < 5(−.260); 1 < 2 (−.204); 1 < 3 (−.192); 1 < 4 (−.204).

[a]As measured by AQ27, higher scores indicate higher endorsement of construct (possible range of scores 3–27). Mdn = median, IQR = interquartile range.
* < .05. ** < .01. *** < .001.

As predicted, those in the controllable cause conditions were significantly higher in attributions of blame than those in the uncontrollable cause conditions. Uncontrollable cause conditions were also significantly lower than controllable cause conditions in the intention to avoid Megan. Contrary to the hypothesis, there were no differences between vignette conditions in perceived dangerousness, emotional responding, helping intentions or segregation.

When considering the effect of reporting uncertain motivation and cause of self-harm on cognitive, emotional and behavioral responding, it is important to note that the comparison group endorsed equivalent levels of personal responsibility beliefs as those in the uncontrollable cause conditions and lower levels than in controllable cause. There were no differences in emotional responses, but the comparison group was lower than the controllable cause groups in avoidance and lower than all other groups in support of coercion. The inclusion of the comparison group is important in giving a more complete account of perceptions of, and responses to, self-harm, given that many people who self-harm are not able to identify clear motivations (Royal College of Psychiatrists, 2010).

Taken together, results of the study indicate that the public discrimination model (Corrigan et al., 2003) may be a useful theoretical framework in explaining public responding to self-harm. However, the variables outlined in the final models explained 30.0% of overall variance in helping behavior (Equation 13) and between 25.5–49.3% (Equations 19, 25, 31) of variance in discriminatory responses. Therefore, other variables are likely to also be important in understanding the dynamics underpinning public perceptions, helping and rejecting behaviors.

Previous research has suggested that perceived functionality of self-harm may be an important factor underpinning attitudes and responding to self-harm (Knowles et al., 2013). However, results of the current study suggest that stated motivation does not affect cognitive, emotional, or behavioral responding. The broader literature indicates an apparent incongruity between stated and perceived motivations, with a bias toward ascribing interpersonal motivations to self-harmful acts of others, assuming that the behavior is undertaken primarily for communicative means (Ramon, 1980; Schnyder, Valach, Bichsel, & Michel, 1999; James & Hawton, 1985; Scoliers et al., 2009). Therefore, to give a more complete understanding, it would be important for future research to consider perceived motivation. Additionally, the exploration of self-punitive and suicidal intent warrants further investigation. Understanding whether similar or divergent processes underpin responding in self-harm behavior considered to be a suicide attempt and that which is not may be important in understanding public discrimination and targeting anti-stigma campaigns.

In contrast to existing research, the current study manipulated presentation format, in order to explore potential differences in responding to text and video-based vignettes. To date, the research using vignettes to explore attitudes has tended to employ text vignettes. Understanding any differences in video vignettes is important especially in public responding where people are more likely to encounter people face-to-face. Participants in the text condition responded more sympathetically to Megan than those in the video vignettes. Given the neutrality in tone and expression portrayed in the video presentation, it is feasible to suggest that participants in the text conditions envisaged Megan to be more overtly distressed and therefore responded more sympathetically. Unpacking these effects is beyond the scope of the current study but could be a useful direction for future research.

Results of the current study indicate that empathy plays an important role in public perception of, and responses to, self-harm. While the present study offers novel insight into the role of empathy in attribution processes, situational empathy should also be considered in future research. This avenue may be particularly fruitful in identifying potentially modifiable targets for anti-stigma interventions.

Overall, results of the current study indicted largely tolerant attitudes, with significantly higher levels of sympathetic affective responses than fearful or angry emotional reactions. Similarly, across the sample, the endorsement of helping responses was significantly greater than the support for avoidant segregative and coercive approaches. These more lenient attitudes are in contrast to the attitudes frequently cited in clinical studies. Furthermore, it stands in oppo-

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sition to the suggestion that attitudes held by the general public may be more negatively polarized than those expressed by mental health nursing professionals (Munro & Baker, 2007). The endorsement of segregation was particularly low, indicating that participants did not perceive it to be better for the community if people who self-harm are separated and isolated.

Limitations

In line with existing research (e.g., Corrigan et al., 2003; Law et al., 2009), the vignettes employed in the current study depicted simple scenarios in which self-harm was attributed to a single cause and driven by a single motivational factor. This potentially reductionist manipulation lacks fidelity, presenting the individual in the abstract, with only minimal reference to the situational context. While this is arguably a valid representation of medical presentation (e.g., presentation to an Accident & Emergency department), in community scenarios those who are confided in are likely to be trusted acquaintances/professionals and, consequently, have a wealth of knowledge pertaining to the individual's background, circumstances, and personal characteristics. A potential extension to the experiment would be to present a more extensive "history" of Megan, followed by an experimental vignette. This approach may offer a more accurate proxy to self-harm disclosures as well as accommodating a more accurate depiction of the complexities of a behavior that may have multiple causes.

While the literature guided the creation of the vignettes in terms of demographics and presentation, these factors may have influenced responding. For example, research indicates that lower controllability is attributed to younger people (Cleaver, Meerabeau, & Maras, 2014; Crawford, Geraghty, Street, & Simonoff, 2003). In turn, there is a propensity for increased tolerance and greater willingness to help when the self-harm relates to children and young people (in comparison to adult populations), given the increased amounts by which the behavior is deemed to be outside the individual's control. It would therefore be important for future research to manipulate the demographics of the individual depicted in the vignette. Factors such as the medical severity of self-harm (Dagnan, Trower, & Smith, 1998) and the perceived likelihood of repetition (Mackay & Barrowclough, 2005) may also be important in attribution. The demographic characteristics of the study sample also warrant consideration. The majority of the current sample (84.5%) was white and British. The impact of these characteristics is, as yet, unknown. Moving forward, it would be important to test the attribution model, as applied to self-harm, in more ethnically diverse and/or international samples.

Finally, considering the vignette manipulation, it is important to note two further limitations. Firstly, participants may be responding to both the nature and controllability of the cause. For example, results of the General Social Survey suggest that the desire for social distance is greater in response to drug abuse than mental health problems (Martin, Pescosolido, & Tuch, 2000). Consequently, the form the cause takes may confound propensities to avoid, coerce, or segregate. Given the multifaceted nature of self-harm, future work may benefit from exploring whether alternative stated causes effect the magnitude of relationships seen between variables in the attribution model. Further research would also benefit from assessing the perceived controllability of cause. Secondly, the stated motivation for self-harm was intrapersonal or interpersonal (or unknown). Future research may seek to refine this manipulation to consider the type of reinforcement (positive vs. negative) as well as the behaviors' social or automatic functions (Bentley, Nock, & Barlow, 2014).

Computerized research protocols have proven useful in obtaining data on sensitive topics (Tourangeau & Yan, 2007). The increased privacy and anonymity afforded by online completion may also increase participants' ease and enhance disclosure of "unfavorable" attitudes. Indeed, researchers have suggested that behavioral intentions in responding to mental health (including stigma and discrimination) are best assessed using online methodologies (Henderson, Evans-Lacko, Flach, & Thornicroft, 2012). However, even with this reduced socially desirable responding, the extent to which the self-reported attitude and intentions to assist correspond with actual behavior can still be questioned, not least as there were no contingencies associated with the responses (Mackay & Barrowclough, 2005). Future research would benefit from including: (a) a measure of social desirability and (b) a behavioral

helping measure, in addition to self-reported intentions. For example, participants could be given the opportunity to donate a proportion of an inconvenience allowance earned through study participation to a charity supporting those affected by self-harm.

Future research would also benefit from gauging the perceived outcomes of intended actions. For example, included in the coercion subscale is the item, "If I were in charge of Megan's treatment, I would require her to take her medication" (Corrigan et al., 2003). While low endorsement on this item could be indicative of a reluctance to enforce treatment against Megan's will, it could also reflect the perceived suitability of medication, in terms of helping; participants may not deem medication (voluntary or enforced) to be potentially beneficial. This may be particularly pronounced in self-harm, given the lack of certainty regarding pharmacotherapy (Hawton et al., 2015, p. 2).

Implications

Notwithstanding these limitations, the study offers novel insight into public perceptions of self-harm and intended responding. The investigation of public attitudes and behavioral response is paramount in the understanding of stigma, with the view to its abolition and the promotion of help provision. Knowledge of the factors and processes that lead to the increased provision of helping behavior allow campaigns aiming to reduce stigma and increase community acceptance and helping responses to be targeted with increased effectiveness. Results of the current study indicate that, when people are less familiar with self-harm or when they make controllable, internal attributions, they are less likely to show sympathetic or direct helping responses. Taken together, this would suggest that education programs may be effective, especially if they address the fact that self-harm is often a behavior with a complex set of antecedents, associated with distress and multiple life problems (Townsend et al., 2016). As results indicate that angry and sympathetic responses may be particularly important when predicting helping/rejecting behavior, work that aims to nurture compassion and situational empathy may also be beneficial.

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"They aren't all like that": Perceptions of clinical services, as told by self-harm online communities

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Abstract

Self-harm is a critical public health issue, with strikingly low rates of attendance to clinical services. By offering support, anonymity, and open discussions, online communities hold useful insights into the factors which influence help-seeking behavior. We explore the perceptions of clinical services in three self-harm online communities to understand which services are being used and why. Message threads from each community were extracted randomly until saturation, providing 513 messages across 60 threads. A thematic analysis was performed resulting in four key themes: access to appropriate services during an episode of self-harm, service preference, fears surrounding disclosure, and support.

Keywords

clinical services, internet, online communities, self-harm, thematic analysis

Introduction

Self-harm, self-injury, or self-poisoning, irrespective of suicidal intent (National Collaborating Centre for Mental Health, 2011), is known to be a critical public health issue (Hawton et al., 2012). Across ages, it has been estimated that 4.9 percent of the English population will have experienced self-harm, this being slightly higher for women (5.4%) than for men (4.4%) (McManus et al., 2009). Self-reported rates of current self-harm are markedly higher in younger populations, around 10 percent of young people (15–16 years) report engaging in self-harm behavior at some point in their adolescence (Hawton et al., 2012), with rates (of non-suicidal self-harm) as high as 35 percent within university student samples (Gratz, 2001). Repeated self-harm is common (Orlando et al., 2015). As well as being indicative of continuing psychological distress, this is of concern given established risks of escalation as repeated self-harm may lead to increasingly severe medical consequences (Chan et al., 2016; Hawton et al., 2003). The issue is highly stigmatized (Long et al., 2013); consequently, self-harm often remains a hidden behavior (McDougall et al.,

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2010). Finally, on top of these worrying factors, self-harm behavior has also been established as the strongest predictor of suicide (Bergen et al., 2010; Sakinofsky, 2000); therefore, no incident of self-harm should be taken lightly. For example, those who self-harm are 50 to 100 times more likely to die by suicide in the 12 months following a self-harm episode (National Institute for Health and Care Excellence, 2013).

A major challenge that is faced when addressing self-harm is that the majority of individuals who self-harm rarely present to clinical services, if at all (Arensman et al., 2017; Geulayov et al., 2018), and of those that do re-attendance rates are strikingly low (Michelmore and Hindley, 2012). This low attendance has, broadly speaking, been discussed in the literature within the context of two over-arching themes, the first being the largely negative attitudes self-harming populations feel that health professionals have toward them (Saunders et al., 2012), whereby health professionals are viewed as being dismissive of mental health issues (Biddle et al., 2006) and that these professionals have poor communication abilities regarding self-harm (Taylor et al., 2009). Such experiences have led to reports that health professionals intentionally withhold particular treatments, such as pain-reducing medications during wound treatment, due to presentation being related to self-harm (Owens et al., 2015; Anonymous, 2016). These actions were cited as being related to professionals believing that these patients enjoyed pain (Anonymous, 2016) or that they were less deserving of treatments (Owens et al., 2016).

The second reason for non-attendance relates to the general stigma surrounding self-harm from community populations (Long et al., 2013). Public stigma can lead to self-stigma, which is known to limit help-seeking for general mental health issues (Bathje and Pryor, 2011; Link et al., 2001). This may translate to individuals not seeking self-harm support particularly in clinical services (Crisp et al., 2005; Ross and Goldner, 2009) because they view their injury as not warranting medical attention. Similarly, in obesity, it has been shown that stigma and weight bias cause patients to experience stress around seeking help for a particular condition or medical check, such as a cancer screening (Phelan et al., 2015). This often results in avoidance behavior and late presentation to services (Phelan et al., 2015).

The reasoning and dynamics behind presentation to clinical services are complex (Crisp et al., 2005; Long et al., 2013; Michelmore and Hindley, 2012; Owens et al., 2015; Ross and Goldner, 2009; Saunders et al., 2012; Taylor et al., 2009). While the studies above provide broad insights into this, there are many other factors and barriers which must be identified and understood before we can seek to effectively increase attendance and provide the services that these individuals desire and need.

To gain such an insight, one needs a resource where individuals discuss freely and openly their views on self-harm and health services. The popularization of the Internet over the past few decades has created such a resource in the form of health-based "online communities," where users with similar health conditions are able to anonymously discuss their views and experiences. Online communities have been used by many authors to explore how people discuss various different conditions, such as irritable bowel syndrome, breast cancer, or Parkinson's disease (Attard and Coulson, 2012; Coulson, 2005; Wicks et al., 2012), as well as mental health, such as depression (Ybarra et al., 2005). The common themes of communication are health information seeking, discussion of clinical experiences, and support from others who have first-hand experience with the illness (Wright and Bell, 2003). This has highlighted that illnesses or behaviors which might be thought of as embarrassing or stigmatized are more openly discussed. For example, in depression and anxiety online communities, Ybarra et al. (2005) found that conversations between members were more likely to discuss very personal topics and suggested that this was related to the anonymity which is offered by the Internet. Unsurprisingly, these online communities have a strong draw for those who self-harm, in particular as an alternative to clinical services for

support seeking (Coulson et al., 2017; Lewis and Michal, 2016). Notably, the asynchronous nature of Internet communication means this support is provided across global time-frames with additional anonymity of their behavior or identity (Suler, 2004).

From the perspective of the researcher, online communities overcome a number of the limitations associated with traditional approaches to data collection. For example, any dataset which involves a large degree of face-to-face interactions will be subject to some level of social desirability (Henderson et al., 2012), especially for a highly stigmatized topic like self-harm. In contrast to the guided technique used in surveys and structured or semi-structured interviews, where the discussion outlines are (to varying degrees) predetermined, online communities allow researchers to view communications as they occur organically between members of the communities and understand how topics and discussions begin, develop, and conclude. More generally, computer-based communication has been shown to encourage people to speak more openly about their emotions and experiences (Rheingold, 1993; Wright, 2000), which is seen in online communities via the spontaneous writing of users and cultures that develop throughout each community. Furthermore, 23 percent of individuals aged 18–29 years stated that they often use online discussion forums, a higher rate than that of any other age group (Duggan, 2015). Therefore, it is highly likely that these online communities are capturing the ages at most risk of self-harm, particularly as we know that young people between 16 and 25 years consistently have the highest figures of Internet usage (Office of National Statistics, 2017), which emphasizes the pool of potential information which can be obtained from these sources.

Across self-harm populations, a few researchers, such as those involved in the forum "Sharptalk" studies (Jones et al., 2011; Owens et al., 2015, 2016; Sharkey et al., 2011, 2012; Smithson et al., 2011a, 2011b), have explored attitudes toward clinical services through engagement with online communities. Owens et al. (2015) utilized a private study forum ("Sharptalk") to explore barrier breakdowns between young peoples' and health professionals' communication when it came to self-harm. While the health professionals recruited were reluctant to engage with the young people within the online community, the young people took the opportunity to discuss their experiences of primary care and how this impacted their self-harm (Owens et al., 2015). In their secondary analysis of this data, Owens et al. (2016) suggest that presentation to emergency services brings with it a "cycle of self-harm, shame and avoidance" (p. 289), which essentially highlights the negative position an individual is already in when they present to hospital with self-harm and how the behavior of the health professionals may further influence this. They discuss how, from the perspective of the doctor, having a private waiting area for a young person who has self-harmed, allows them "privacy," whereas from the individual's perspective, they feel they have been set aside, which can potentially allow further self-harm to continue (Owens et al., 2016). This is a difficult relationship to understand, and further exploration of how people who self-harm discuss clinical services may provide greater clarity.

These "SharpTalk" studies sought to gain information from one closed online community designed specifically for their study. This allowed them control of the environment and population, for example, sampling adolescents exclusively and encouraging input from health professionals. In contrast, we seek to gain a more generalized understanding of self-harm and interactions with clinical services and not focus on just one self-selected group of individuals or one community. Therefore, the aim of this study is to explore the perceptions of clinical services within self-harm online communities, in particular: (1) their attitudes toward clinical services, (2) their reasons for choosing not to seek help and, (3) of the subset that do seek help, how their views of clinical services differ and what value they find in these services. By exploring the opinions and views of self-harming individuals, we identify themes that both build on the findings of the studies

above, as well as offering a unique perspective of how self-harming individuals view clinical services in an organic environment. This study therefore aims to provide a clear view of some of the most fundamental views and biases self-harming individuals hold toward healthcare, thereby providing a logical starting point for the initial steps one can take to increase attendance and offer a more desirable service.

Method

Selecting online communities

This study used a qualitative analysis of messages posted to three self-harm online communities. The inclusion criteria were that the online communities needed to be (1) dedicated to self-harm; (2) publicly available, such that messages could be viewed and downloaded without registration to the site; and (3) currently active, as determined by ensuring that the most recent message to the message board was less than 2 weeks old. These criteria ensured a sample of online communication which was focused around self-harm behavior. The communities selected were the top three consistently occurring sites across three popular search engines (Google, Yahoo, and Bing), using search terms such as *self-injury* or *self-harm* with the phrases *message board, forum*, or *discussion*.

Ethical consideration

This study was granted ethics permission from the University of Nottingham and was conducted in accordance with the British Psychological Society (2017) guidelines for Internet-mediated research.

All data were within the public domain (Sudweeks and Rafaeli, 1996), thereby removing the necessity to collect informed consent from each member of the site. For example, this type of method has a diverse audience from exploring Facebook and Twitter use during times of crisis (Muralidharan et al., 2011) to understanding online product reviews and clinical outcomes (De Barra, 2017). Importantly, as the study is observational in nature, this also ensured that there was no need to interact with online community members, thus safeguarding against any interference within the community; the group dynamics and communication remained unchanged (Winzelberg, 1997).

Confidentiality of all online community members was ensured by removing their usernames and any response abbreviations from messages, meeting the standard required by the British Psychological Society (2017). Further information such as location, pictures, or demographic listings—which could be considered as potentially revealing identifying information—was removed or replaced if context was necessary to understand the passage. Furthermore, it was crucial for the privacy of community members that all messages used for dissemination were untraceable from their original source (British Psychological Society, 2017). This meant that reverse searching was a necessity for all quotes used in dissemination. In some instances, this meant that shorter quotes were taken from messages or that some potentially relevant messages could not be used due to their traceability.

Data extraction

Within each of the three online communities, threads of messages were randomly selected for analysis. This was achieved by first organizing posts so that they appeared with the most recent as the first page and going backward temporally, then generating a number between the first and last pages of messages and then assigning each thread from that page a number in chronological order. A second number was then randomly generated and the target thread was extracted in its entirety. This ensured that messages could be analyzed within the full context of the discussion, as well as stand-alone quotes. If upon entering a thread, it was discovered that all messages had been deleted, this was noted and the process started again. This was repeated until saturation was met.

Data analysis

Deductive-inductive thematic analysis (Braun and Clarke, 2006) was utilized to analyze all messages within their thread context and as stand-alone messages, to identify content related to experiences or perceptions of clinical services. A.J.W. was engaged with the data from initial data extraction. When extraction was complete and the data was fully anonymized, all collected data were shared with E.N. From here, A.J.W. and E.N. developed their own frameworks of themes and subthemes. Notes and discrepancies between the two independent frameworks were discussed, taking forward the strongest subthemes both researchers had individually identified and collating them under a major theme which related to the grouped subthemes. The relevant data were observed and closely analyzed to determine an agreed overall framework. To establish reliability between researchers, 10 percent of coded messages were sent to a third researcher (N.S.C.) who was given theme descriptors but was naive to the original thematic development discussions. Within the overall framework, this reached a high level of agreement of 87.5 percent.

Findings

In total, 60 threads containing 513 messages from 209 unique online community members were extracted retrospectively throughout June 2016. This dataset represented communication in conversational threads created across a 10-year period, from 2006 until the end of June 2016. Threads contained between 1 and 117 messages, with a median of 5 per individual thread. All messages within this manuscript remain with the original spelling and structure as used within the online communities.

Four core themes were identified; (1) difficult to reach appropriate services in a timely manner, (2) access to therapy; through the medical gateway, (3) confidentiality—fear of disclosure and consequences, and (4) value of support. Table 1 gives the subthemes for each theme (see Appendix 1) and shows each theme's overall prevalence within the sample, with some messages mapping to one or more themes. The denominator in all descriptive factors was the total number of threads which were included in this analysis. Across 70 percent of the threads, at least one message contained information related to one of the four themes discussed, which related to experiences or perceptions of clinical services.

Difficult to reach appropriate services in a timely manner

This first theme observes the practicality of service access and how this can be influential on help-seeking behavior within self-harm. Messages conveyed opinions of services not being suitable for them alongside the difficulty of finding the right type of support. What was particularly relevant was that the types of clinical services which were considered to be necessary were not available within the timeframe they were most needed: "the offices are so full up round here … they couldn't take me until the end of January" (ID: 112, B14). This led to the promotion of private or third-sector organizations over traditional medical care.

Many online community members spent time discussing how they were unsure of what services to access during episodes of their self-harm, particularly if primary care services were not available: "then what else is there?" (ID: 126, B18). In some cases, this was paired with a waiting period, which would help their situation in the long term but during the initial episode was of little use. Alternatively, being able to afford clinical services or having the insurance which could access desirable services was not always forthcoming: "I can't afford my therapist" (ID: 80, B3); "Medicaid doesn't cover much" (ID: 191, C3); and "I cant really afford to go private unfortunately" (ID: 1, A1).

Included in these communications were messages which argued that the clinical services offered to them were not always appropriate or suitable: "The doctor didn't give me stitches, so now I just have a hole in my thigh, that occasionally bleeds" (ID: 191, C13); "I don't want

that kind [psychiatric care] of help!" (ID: 55, A12); "medications making me sick" (ID: 78, B17); and "i just don't want to end up being put into a long term state hospital" (ID: 63, A15). In response to these messages, other community members often replied by encouraging the member to find an alternative medical professional: "it's awful that the doctor didn't give you stitches—can you see another doctor?" (ID: 191, C13) and "you can then choose someone who suits you, you may have to see and few to decide who is right for you" (ID: 2, A1).

Alongside this, promotion of third-sector or private health services was often offered for future reference: "Maybe the Samaritans" (ID: 57, A15) and "Have you tried therapy? It could maybe really be of benefit to you" (ID: 186, C10). In many cases, these were seen as more accessible or as a viable alternative to medical services. Notably, the attitudes toward these services were much more positive, acknowledging differences between particular individuals: "I'm sorry you haven't had luck with therapists … But really, they're not all like that" (ID: 83, B6).

Access to therapy; through the medical gateway

While presenting at medical care was a start, the help that was truly needed was often seen as an understanding of how to cope with underlying psychological issues. Receiving support for this was noted as critically important to reducing self-harm and messages would frequently state that going through a GPs office or medical service (such as the Emergency Department) was the only way to reach this support. Communication circled around how a discussion of the underlying issues which influenced self-harm was the most effective service to reducing their distress "Getting therapeutic help was a deciding factor in my stopping the SH behaviour, and my therapist has been very understanding, accepting and supportive" (ID: 58, A18).

Throughout the messages, therapy was seen as being central to recovery, either as a solution to reduce self-harm itself or as a means to reduce the impact of mental health: "If you approach your gp about you sh or feelings … they may be able to get you some cbt counselling, which you may find helpful" (ID: 2, A1). However, reaching this point often meant the only means of access was via medical services. In this situation, medical services were seen as necessary stages that were required to get to the services which were ultimately desired: "i think you should go back to your GP and explain whats going on … hopefully they can provide you with some more support like a therapy or counselling" (ID: 64, A15).

Confidentiality—fear of disclosure and consequences

Across this theme, messages discussed not seeking physical healthcare due to self-harm injuries. This was often related to avoiding services because the individuals were concerned about their confidentiality and many users showed a misunderstanding, or uncertainty, as to how healthcare professionals would react to their disclosure. In addition to this, people discussed their fears of being misunderstood at consultations or "labeled" with having a mental health issue, which also appeared to reduce the likelihood of attending clinical services: "I can understand not wanting to be labeled 'mad'" (ID: 3, A1).

Across messages, there were concerns about confidentiality within clinical services, whether this be attending medical services for self-harm wounds: "If I come in for a broken wrist can they keep me or report me for having cuts?" (ID: 142, C4) or because of assumptions about their mental health: "That said, I don't want anyone to see it coz they'd probably assume I'm mentally ill or something" (ID: 55, A12). While this subtheme only appeared in 5.0 percent of the threads, the authors felt it was an important finding due to the nature of self-harm and how this behavior is known to escalate. It is important to acknowledge that if these individuals are not seeking help on other matters due to self-injury, then it is unlikely that they will attempt to disclose self-harm at all. In addition,

if people are concerned about seeking clinical help because of this fear of self-harm discovery, then there are also implications for accessing healthcare more broadly, such as accessing screenings or seeking medical assistance following accidental injury.

From these, it is clear that the fear of disclosure and the consequences which might follow are a significant concern to this population. This appears to be led by a lack of knowledge about the latter stages of presenting to clinical services and what rights they will have as patients "i'm just scared … I wont be able to get out [of hospital]" (ID: 63, A15). At this point, it is important to note that these online communities are spread globally and that there are thus a range of consequences related to presentation with self-harm across different cultures: "isn't understood in this country" (ID: 48, A11).

"It's confidential, as long as you aren't threatening to kill yourself or others, they won't tell anyone" (ID: 190, C12), responses to concerns of confidentiality of clinical care staff were ensured by other members. However, despite the large number of positive responses, fear of disclosure and consequences remained throughout the online communities. A small but notable proportion of the messages discussed the fear of sectioning (to be forced into or to remain in hospital due to mental health) or being placed within in-patient services: "second I was found out in my teenage years and subsequently sectioned" (ID: 165, C8) and "they might lock me up" (ID: 1, A1). This spread further than just the initial fear of presenting to clinical services but also to other areas that might be affected by presentation, such as losing their child: "iv been there … and lost my children" (ID: 65, A15), or having to declare self-harm to their employer: "Worried about loosing my job if i have to declare something to my employer" (ID: 1, A1).

Value of support

As with many online communities, support was commonly sought by those struggling with self-harm from peers who also had similar experiences, and that this was impactful to how they not only handled their emotions: "I think I just need some guidance from people with experience who can help me and be there to talk to" (ID: 76, B2) but also their own injuries. While there was no encouragement of further self-harm in our dataset, some injuries were considered by other members as warranting treatment via self-treatment: "make sure you keep your wounds clean" (ID: 96, B15), whereas others were recommended as requiring professional mental health support or medical services: "Fractures need professionals looking at them, I would not suggest not going because of the cuts" (ID: 143, C4).

Different practices were observed across the online communities in regard to the solicitation and provision of advice regarding the self-management of self-harm. One of the three communities had moderators who deleted messages which contained information about how to look after a wound. In contrast, the other two communities allowed people to discuss how to avoid wound infection: "make sure you keep it clean" (ID: 23, A9) and "dilute the salt alot thow, it will sting ouch but will stop infection" (ID: 31, A9). Self-management, or support seeking within the online community, was also suggested as a means to work through distress and demonstrated that other members understood how the initial member felt: "You're not alone buddy … I'm here …" (ID: 61, A13). Support was also offered by encouraging members to look how far they'd developed since their last stop-attempt: "… shows that you've made some progress!" (ID: 74, B1).

Alternatively, seeking professional help was also frequently seen across messages: "call 999" (ID: 126, B18) and "Be a friend to yourself and see that doctor!" (ID: 97, B15), with members explaining the need for help-seeking in the "real" world; "preferably [counselling] in 3D" (ID: 90, B5). This was particularly relevant when wounds (self-harm or otherwise) were known to be more medically severe: "You can't leave a broken wrist untreated" (ID: 146, C4).

Discussion

The aim of this study was to explore the perceptions of clinical services for people who self-harm

from the perspective of members of online self-harm e-communities. In order to achieve this, we analyzed user-generated content from three online communities with an international focus. Our findings yielded four key themes, which we will now consider.

Our findings illustrate the challenges of accessing self-harm support services, but capture how peers within online communities can share experiences and advice which may help individuals engage with services. This provides an insight into why some people choose to and choose not to approach medical services following an episode of self-harm.

Specifically, our results demonstrated the importance of finding the appropriate service for an individual and how it needs to be suitable for their personal needs at the time of presentation, whether it is for mental and/or physical support. An evident difficulty which faced this population was that one negative experience, either personal or shared, may discourage attendance at services and lead them to label the service as unsuitable. This can be linked directly to previous findings, which demonstrate the experiences of frustration during hospital attendance (Hunter et al., 2013) due to continual cyclic referrals between GPs and care teams, resulting in large delays or cease actions. The resulting periods of inactivity undoubtedly lead individuals to feel as though a service is unable to handle their behavior or mental state, thereby diminishing their motivation to continue seeking treatment. Avoiding clinical services is therefore, unsurprisingly, considered a viable solution, as the individuals feel the services available to them cannot meet their needs and that attempts to seek help lead to multiple disturbances before receiving treatment. Service barriers within mental health, such as appointment delays, waiting lists, and a lack of resources have previously been shown to be positively associated with avoidance behavior (Kazdin and Wassell, 1999; Spirito et al., 2002).

There is considerable evidence to suggest that stigma and fears concerning treatment negatively impacts help-seeking behavior in young people who self-harm (Fortune et al., 2008; Freedenthal and Stiffman, 2007). Again, it became evident that one negative experience with a doctor, whether it be someone's own experience or a story from someone else, was a strong barrier to healthcare attendance. This is an issue within other populations such as obesity, where weight bias and perceived stigma from health professionals encourages avoidance behavior (Phelan et al., 2015). Furthermore, these individual cases of "horror stories" appeared to outweigh the influence of the multiple accounts of excellent professional services offered by other members of the online communities. This supports the Owens et al. (2015) "cycle of self-harm" (p. 289), which discusses how young people feel while attending A&E, in particular that they are treated differently. We observed that individuals want to feel that doctors or other health professionals are working with them, rather than for them, supporting the suggestion of Owens et al. (2015) that there could be benefits in evidencing to the individual that they are being treated like any other patient. For example, this could be achieved by giving the patient a more active voice in their received treatments (Michelmore and Hindley, 2012), leading to patient-centered care (Richards et al., 2015). Furthermore, triangulating communications between therapeutic and medical services would also allow for more open relations between people who self-injure and health professionals, hopefully promoting higher rates of help-seeking. Further research would be required to understand whether this solution is a viable, feasible, and acceptable response for those who attend primary care services as well as whether this would be thought to increase future attendance for the population as a whole.

Another important aspect of this study is the understanding of clinical services' processes and their interplay with client confidentiality. Many users seemed unaware that disclosure of self-harm would, on the whole, remain with only the healthcare provider with whom they had discussed it, or under what circumstances this confidentiality would be broken and how. Indeed, further confusion may well be facilitated by legitimate safety policies, such as

discussions within "the team" of health professionals, thus needing clear knowledge of whom this might include. For younger individuals, who are more likely to self-harm (Hawton et al., 2012), this concern is arguably larger, due to the gate keeping guidelines in place for young people and vulnerable populations (National Collaborating Centre for Mental Health, 2004). Young people may worry about their guardians discovering their behavior, how much power they hold over what happens after disclosure and the long-term impact this will have on their social and professional lives. While the responses to these concerns are clear to us, for a young person who is distressed, self-harming and fearful about the services available these are very distinct worries (Michelmore and Hindley, 2012). Therefore, we make a simple recommendation that clinical services state clearly their confidentiality processes in their offices and online (which is more accessible and where a large fraction of this population are spending their time). Here, it is important to stress the differences between an individual attending for help with self-harm and an individual who is in suicidal crisis, stating clearly how this impacts the following steps of care. In line with this recommendation, it would also be beneficial to have a set of standard frequently asked questions about self-harm and how disclosure is handled with that particular clinical service. These will go further in assuring patients of how the interaction will play out without direct input from professionals.

It is also important to discuss the value of group identity, which was evident throughout all of the online communities. When users share a group identity, such as that found on the self-harm sites, the suggestions and recommendations made between users to one another may be more influential. This was illustrated through the observed influence members had on one another when offering advice on self-care and professional help-seeking. Previous research has shown that people often seek support for self-harm through their informal network rather than seeking professional help directly (Biddle et al., 2004; Nada-Raja et al., 2003; O'Donnell et al., 2003), particularly peer support (Biddle et al., 2004; Nada-Raja et al., 2003; Nixon et al., 2008; Ystgaard et al., 2009). Thus, the group support seen in these online communities is both unsurprising and fundamentally important, particularly when it came to influencing a member to approach health professionals for either medical or mental health services.

Qualitative research is a reflective and recursive process (Ely et al., 1991); therefore, we must consider the impact of researcher bias when considering these results. Due to the large pool of previous literature demonstrating that there is a clear divide between help-seeking behavior in self-harm and clinical services, it was acknowledged that this prior information might influence how the authors considered the data during analysis and when reporting. However, multiple authors were required to agree on each theme, including a third author whose primary field is not self-harm. This allowed us to challenge these influences via reliability checking of themes and through discussions of the framework and the final manuscript.

Limitations

There are a number of limitations of this study which should be taken into consideration. First, our data are taken from three online communities with member representation from many different countries and the organization of healthcare services are likely to vary markedly. Thus, while our findings have captured a range of experiences and viewpoints they are not focused on one single country or healthcare system. Indeed, the nature of our data means that some quotes were limited in their utility within the manuscript due to the identifiable language. However, these quotes were still informative for theme development, and within the manuscript, we adopted similar, less individualized posts to emphasize the meaning and discussed points more generally. Second, our data represent a snapshot or cross-sectional perspective on self-harm support services across a 10-year period. It remains to be seen

whether people's experiences and perceptions changed over time since we did not track the messages posted by individual community members. In addition, while it is considered by some best practice to use "member checking" (Smith and McGannon, 2017) or patient advisory groups to examine the developed themes in a qualitative analysis, this was not done due to the variety of populations across online communities. This was not viable within this context as users of the boards are anonymous and it was important not to join the groups or interact with members as this might have influenced the data. In future, the addition of a PPI group could offer a solution both in terms of checking themes and also thinking about where conversations of this nature are happening (e.g. self-harm specific communities, within schools, or social support). Finally, our dataset may be biased to the extent that those who posted messages about their views on healthcare services may have held a more extreme position than those who did not comment on this issue. Furthermore, from online messages, it is impossible to determine whether a member of these communities is actively engaged with self-harming behavior or if they have dealt with it at all. This limitation is similar to other methods which include self-report responses, although arguably these messages to online communities may have more utility in elaboration than a survey or an interview. This may influence the extent to which these messages can be applied with conviction to a self-harm population at large.

Conclusion

This study focuses on an issue evident in previous literature, help-seeking, by investigating communication within self-harm populations regarding their experiences with clinical services. The use of online communities provides a unique and organic view of their opinions spanning an international dataset, revealing the difficulties surrounding help-seeking and highlighting why individuals self-select to not attend healthcare. To improve self-harming individuals' experience at healthcare and increase attendance, we suggest the following: (1) encourage doctors to give patients a more active voice during treatment; (2) make information on how a service will respond to a self-harm presentation (including client confidentiality) easily available and; (3) to consider how the group identity seen in online communities could be used to promote healthcare attendance. Individual responses were also seen to be highly related to the underlying influence of perceived stigma on the part of those who self-injure as well as the external stigma observed within clinical services and the general public.

Next steps

These results provide a basis for further exploration on how to encourage further attendance to clinical services. In the future, we would seek to assess whether our recommendations could act as a brief intervention to embolden help-seeking. Furthermore, research should focus on understanding how to reduce stigma, both self-perceived and public within self-harm populations.

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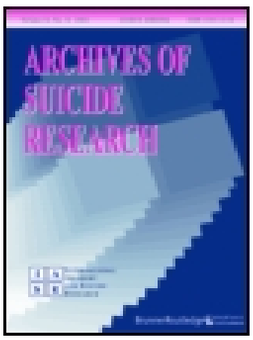
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Appendix 1

Table 1. Thematic framework and prevalence of theme, within self-harm online communities experiences and perceptions of clinical services.

Theme	% of threads containing theme	Subtheme	% of threads containing subtheme
Difficult to reach appropriate services in a timely manner	68.3	Inconsistent or limited access	16.7
		Unsure which services are available beyond GP	10.0
		Unsuitability of services	15.0
		Promotion of third-sector/private care	15.0
Access to therapy; through the medical gateway	31.7	Need for support to stop self-harm (help-seeking)	13.3
		Value of dealing with underlying issue	18.3
Confidentiality—fear of disclosure and consequences	30.0	Not seeking physical healthcare due to disclosure	5.0
		Concerns of confidentiality	10.0
		Fear of labeling/being seen as mentally ill	10.0
		Avoidance responses	10.0
Value of support	41.7	Self-care	10.0
		Support from online peers	35.0
		Encouragement of professional help	18.3

GP: general practitioner.



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Public Perceptions of Self-Harm: Perceived Motivations of (and Willingness to Help in Response to) Adolescent Self-Harm

Emma Nielsen and Ellen Townsend

We investigated public perceptions of, and responses to, adolescent self-harm —an under-researched topic, given that the majority of self-harm in this group is not disclosed to formal support services. Participants (N = 355, aged 18–67 years) were presented with 1 of 10 vignettes and completed self-report measures assessing perceived motivations for self-harm and helping/rejecting responses. Vignettes were manipulated across conditions for stated motivation, controllability of stated cause, and presentation format. Results indicate that stated motivation for self-harm, controllability of stated cause, and presentation format affect perceived motivations. Further, participants demonstrate an understanding of the complex nature of self-harm, indicating an appreciation that an individual may hold multiple motivations simultaneously. Perceived motivations for self-harm are associated with the endorsement of helping/rejecting behaviors. These relationships are important to explore, given the critical importance of initial responses to self-harm on subsequent disclosures and help-seeking.

Keywords adolescents, motivation, non-suicidal self-injury, self-harm, suicide

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INTRODUCTION

Self-harm, "self-injury or self-poisoning irrespective of the apparent purpose of the act" (National Institute for Health and Care Excellence, 2004, p. 6), is a serious, and growing, public health concern which disproportionately affects young people (Owens, Hansford, Sharkey, & Ford, 2015; Townsend, 2014). In order to understand self-harming behavior, it is important to consider the function(s) it serves. Indeed, the motivational dynamics underpinning self-harm have important implications for both intervention and the prevention of subsequent episodes (Boergers, Spirito, & Donaldson, 1998). Salient motivations for self-harm include release or relief (primarily from overwhelming, aversive affect), distraction, self-punishment, control and functions related to dissociation or depersonalisation (Rodham, Hawton, & Evans, 2004; Suyemoto, 1998). Contemporary theoretical accounts (e.g., Chapman, Gratz, & Brown, 2006) posit that individuals

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self-harm primarily to reduce intense affective responses that they find difficult to tolerate (Laye-Gindhu & Schonert-Reichl, 2005).

The available empirical evidence supports this assertion. Scoliers et al. (2009), using the Child and Adolescent Self-harm in Europe (CASE) data of 30,477 adolescents, investigated motivations of self-harm. Relief motives received the highest endorsement. The least frequently reported intentions were all interpersonal in nature. Tension relief motivations are also highly endorsed in spontaneous reporting (Rodham et al., 2004).

Research indicates that the vast majority of people with a history of self-harm disagree with the statement "self-harm is a failed suicide attempt"[1] (92.9% disagree; 5.8% no opinion; 1.2% agree) (Warm, Murray, & Fox, 2003). However, the survey assessed generally held perceptions of accuracy/inaccuracy of statements. Therefore, while the results clearly indicate that, within this sample, the majority of respondents disagree that self-harm is typically related to a suicide attempt, this is not to say that individual episodes of harming may not have suicidal motivations. A significant number of people—in both clinical and community samples—who report histories of non-suicidal self-injury also report having attempted suicide, and non-suicidal self-injurious thoughts often co-occur with thoughts of suicide (Andover, Morris, Wren, & Bruzzese, 2012). Indeed, recent taxometric analyses demonstrate a continuum of intent in self-harmful behavior (Orlando, Broman-Fulks, Whitlock, Curtin, & Michael, 2015).

Nock, Prinstein, and Sterba (2009) systematically examined adolescent (non-suicidal) self-injurious thoughts and behavior in real time utilizing ecological momentary assessment. The primary motivation reported was intrapersonal in 85–90% of cases. Interpersonal intention was indicated in just 15–20% of episodes. More specifically, intrapersonal-negative reinforcement (the reduction of, or distraction from, aversive affect) was reported in 64.7% of instances, representing the most frequently endorsed motivation. Intrapersonal-positive reinforcement (the generation of preferred emotion, feeling or stimulation) and interpersonal-negative reinforcement (the escape from, or avoidance of, aversive social situations) were less frequently endorsed (24.5% and 14.7%, respectively). Self-harm with the intention of gaining attention or facilitating help-seeking (interpersonal-positive) was noted infrequently, endorsed in just 3.9% of the episodes reported. Thus, results point to a cognitive-regulatory function of self-harm as well as the frequently cited affect-regulatory functions (Klonsky, 2007).

In stark contrast to the empirical data, a commonly cited motivation among the general public, the broader literature, and indeed over-reported by healthcare professionals is the elicitation of a caring response from others (Gratz, 2003; Long, Manktelow, & Tracey, 2013; Ross & Goldner, 2009). This is commonly depicted as a means of manipulating or coercing others, or as attention seeking (McCann, Clark, McConnachie, & Harvey, 2007). Interpersonal motivations are reported by a minority of those who self-harm—albeit rarely as a sole motivation (Boergers et al., 1998; Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007) or a primary goal (Levenkron, 1998; Linehan, 1993).

It is important to note that relationship problems are commonly identified as a life problem contributing to self-harm in those presenting to general hospital (e.g., Townsend et al., 2016). However, such epidemiological studies show that people

[1]We believe that notions of "failure" (or indeed "success") in relation to suicide attempts are unhelpful, inaccurate, and potentially stigmatizing. We include this statement in quoted prose as this is the language employed within the original research.

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report multiple life problems. Further, they do not collect data about the potential psychological functions associated with self-harm. Thus, it is likely that it is the emotional distress caused by relationship problems that is the key precipitant for self-harm. While self-harm provides a potent social signal, which may prove influential when other communicative means prove inadequate (Nock, 2008; Wedig & Nock, 2007), only a small minority (20%) of individuals report a positive experience of attention, that they "like attention resulting from self-harm" (Favazza & Conterio, 1989, p. 285).

Motivations for Self-Harm and Helping Responses

Understanding the dynamics that influence perceived motivations for self-harm is crucial, as perceived motivations may directly influence the helping/rejecting response given to those who self-harm (Knowles, Townsend, & Anderson, 2013). Initial reactions upon disclosure of self-harm are critical, given their influence on subsequent disclosures and help-seeking (McDougall, Armstrong, & Trainor, 2010).

Individuals whose self-harm is perceived to be interpersonally motivated may, naively, be deemed at a lesser risk of suicide and less in need of support from mental health services (Knowles et al., 2013). Knowles et al. (2013, p. 1189) suggest that staff engaging with young people within a Youth Offending Team (YOT) dichotomize episodes of self-harm as "genuine" or "attention seeking" dependent upon perceived motivations. Specifically, their results indicate that self-harm was frequently dismissed as merely manipulative if the behavior was perceived to be interpersonal or socially motivated, with these individuals perceived to be not "seriously at risk" (Knowles et al., 2013, p. 1190). This demonstrates an apparent lack of understanding that self-harm may serve multiple functions simultaneously (e.g., Suyemoto, 1998).

Negative emotional responses and dismissive reactions may be attributable to a lack of appreciation for the motivations underpinning self-harm; results of Hopkins (2002) ethnography indicated that nursing staff who had difficulty understanding why someone may self-harm expressed the highest levels of frustration and helplessness. This is concerning, given that increased negative affect is associated with a reduced willingness to help (Mackay & Barrowclough, 2005). Owens et al. (2015, p. 3) highlight that the consequences of such negative attitudes and rejecting behaviors are three-fold, "reinforcing the feelings of shame and worthlessness with which the young people arrived (to A&E); avoidance of future help-seeking, and adverse health outcomes, both mental and physical." The need for accurate perceptions of the motivational dynamics underpinning self-harm is further highlighted by research suggesting that a clinician's ability to comprehend motivation(s), and then frame their engagement within this understanding, impacts a young person's willingness to engage with clinical services and is paramount to appropriate tailoring of treatment (Boergers et al., 1998).

Despite the weight of evidence indicating that perceived motivations relate to the propensity to help (or reject) in response to self-harm in professionals, to date there is a dearth of evidence considering public perceptions and responses to self-harm. It is paramount to understand public responding given that self-harm is usually first disclosed within informal support structures (e.g., friends, family, etc.) (Rowe et al., 2014). Thus, here we explore perceived motivations of, and subsequent responses to, self-harm in a community-based sample. We build on previous important work in the field (Cutcliffe & Barker, 2004; James & Hawton, 1985; Knowles

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et al., 2013; Law, Rostill-Brookes, & Goodman, 2009; Nielsen & Townsend, in press; Ramon, 1980; Schnyder, Valach, Bichsel, & Michel, 1999; Scoliers et al., 2009) by selecting variables known to influence public perceptions—these are discussed in the paragraphs that follow.

Stated versus Perceived Intent

Motivations for self-harm may be reported. They may also be inferred or assumed. Schnyder et al. (1999) reported that both clinicians and individuals who had engaged in self-harmful behaviors showed greatest endorsement of intrapersonal intentions. Similarly, manipulative motivations were largely rejected by nurses, doctors, and those who had self-harmed. While this would suggest a degree of consensus between stated and perceived motivations, incongruity is frequently cited. Typically, medical professionals are reported to demonstrate inflated endorsements of communicative intentions, overestimating the role of interpersonal motives (Knowles et al., 2013).

A reported discrepancy between stated and perceived motivation is not limited to healthcare professionals; relatives also demonstrate a bias to ascribe interpersonal motivations, assuming self-harming behavior is undertaken primarily for communicative means (Ramon, 1980). Family members and significant others are often naïve to potential intropunitive motivations of self-injurious behaviors (Scoliers et al., 2009). This propensity to attribute interpersonal, communicative intention shows clear contradictions with personal testimony and verbalisation of intent following self-harm.

In risk assessment procedures, a statement of suicidal intent is not considered sufficient evidence of its existence (Cutcliffe & Barker, 2004). Some research evidence suggests that in instances where interpersonal motivations are assumed, professionals wrongly believe that the individual is at a lesser risk of death by suicide than in episodes without a socially motivated component (Knowles et al., 2013).

There is some evidence to suggest that levels of suicidality associated with an episode of self-poisoning are differently perceived by the individual who overdosed and their significant others. James and Hawton (1985) reported that over 35% (38.2%) of those who had self-poisoned stated suicidal intention as a behavioral motivation. However, only 2.9% of significant others concurred, acknowledging suicidality. Low perceived suicidal intent is evident in the converse also; 8.8% of those who have self-poisoned denied suicidal intent to any extent, compared to 41.2% of significant others.

The literature exploring perceived suicidal intent is extremely restricted in scope, with a notable absence of recent research. Given (i) the reported increases in self-harm and suicide in the last 30 years, and (ii) increased discussion of mental health, including self-harm and suicidality, and awareness and education campaigns across the last 30 years, it is feasible that public perceptions have shifted. Given the potential ramifications for help-seeking, it is important to explore perceived suicidality in a contemporary sample.

Perceived motivation influences help-giving intentions and behavior, thus it is crucial to further explore the relationship between stated and perceived motivation experimentally. Self-harmful behaviors are frequently accompanied by complex emotions; often individuals who engage in self-harmful behaviors are unable to identify their own intentions, appear ambivalent, or believe they behave without distinct motivation (Csipke & Horne, 2008; RCP, 2010). Given that people are often unable to identify clear motivational antecedents, it is of methodological relevance to include a control comparison condition with unknown cause and motivation

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for self-harm. Therefore, the current study will explore not only the congruity between stated and perceived, but also perceived motivations in the absence of reported known motivation.

Controllability of Cause

Attributions of controllability have been highlighted in theoretical accounts as having both a direct and indirect influence on affective and behavioral responding to mental health concerns (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003; Nielsen & Townsend, in press), with empirical evidence supporting their role in emotional and behavioral responding to self-harm in both healthcare and non-healthcare student samples (Law et al., 2009). While researchers have suggested that perceived motivation may be related to controllability (Knowles et al., 2013), this has yet to be systematically explored.

Current Study

Here we extend existing research by exploring perceived motivation in the absence of stated motivation, as well as the effects of stated motivation and controllability of stated cause on perceived motivation, in the general population.

As Knowles et al. (2013) note that vignette studies would be optimally placed to explore the impact of attributions of motivation, participants here will be presented with a representative hypothetical case vignette, depicting a presentation of adolescent self-cutting. The vignettes will be manipulated between groups in terms of controllability of stated cause of self-harm (controllable vs. uncontrollable) and stated motivation (interpersonal vs. intrapersonal). Typically, research employs written case vignettes (e.g., Law et al., 2009) but, given that many disclosures of self-harm encountered in the community are likely to be face-to-face, the effect of presentation style of perceived motivation will also be explored, comparing text format with a video format (see, Nielsen & Townsend, in press. for futher discussion).

Additionally, the study will explore the relationship between perceived motivation for self-harm and endorsement of helping behaviors. To explore this, participants will be presented with a scenario in which they are volunteering within an Accident and Emergency (A&E) department and encounter the character depicted in the vignette. Participants will be asked to rate preferences in behaviors ranging from direct, self-initiated helping (starting a conversation with Megan) through to rejection (ignoring Megan).

The study aims to explore:

1. Whether perceived motivations align with stated motivation for self-harm.
2. Perceived motivations in the absence of information regarding motivation (unknown motivation).
3. The effect of controllability of stated cause for self-harm (controllable vs. uncontrollable) and presentation format (text vs. video) on perceived motivations for self-harm.
4. Whether perceived motivations are associated with perceived suicide risk and helping/rejecting responses.

METHODS

Participants

A total of 355 ($N = 355$) adult participants took part in the study. The majority of the sample were female (73.5%) and White (84.5%) (2.3% Black, 7.0% Asian, 2.8% mixed background, 3.4% unspecified/other). Participants ranged in age from 18–67 years ($M = 25.65$, $SD = 10.95$). Four participants (1.1%) did not indicate their age. The community sample was

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self-selected, with participants responding to poster, e-mail and word-of-mouth advertisements.

Participants were not pre-screened for, nor excluded on the basis of, personal self-harm history. The majority of the sample (73.4%) had low to moderate familiarity with self-harm (see Nielsen & Townsend, in press). The study protocol was approved by the institutional ethical review committee (School of Psychology) and signposting to sources of emotional support was provided to all participants.

Design and Procedure

Data were collected via an anonymous, cross-sectional, online survey. The experiment followed a $2 \times 2 \times 2 + 2$ between subjects design (10 total conditions, see Table 1): stated motivation (intrapersonal vs. interpersonal) x controllability of cause (controllable vs. uncontrollable) x presentation type (text vs. video presentation) with hanging control comparisons (unknown motivation/unknown cause) in each presentation format (text vs. video). Participants were randomly allocated to condition, via Randlink.

Each participant was presented with a single, representative (see Nielsen & Townsend, in press for further discussion), hypothetical case vignette adapted from those employed by Law et al. (2009), to consider the stated motivation for self-harm, as well as the controllability of stated cause. In-line with the manipulations employed by Law and colleagues, the stated cause of self-harm was either drug misuse (controllable) or childhood abuse (uncontrollable).

> My name is Megan and I am 17. I deliberately cut my arms, legs and stomach with a sharp instrument, resulting in wounds. [I wanted to get relief from a terrible state of mind (intrapersonal); I wanted to show others how desperate I was feeling (interpersonal); I don't know what I wanted to happen as a result (unknown)]. [I think I do this because I misuse drugs (controllable); I think I do this because I was abused when younger (uncontrollable); I am not sure why I did this to myself (unknown)].

Vignettes were controlled for length, containing 43–45 words. No information regarding psychiatric diagnosis, or lack thereof, was provided. In video vignettes,

TABLE 1. **The $2 \times 2 \times 2 + 2$ between Subjects Design. Participants Were Randomized to One of Ten Vignette Conditions**

Condition	Stated motivation	Controllability of stated cause	Presentation format
1	Intrapersonal	Controllable	Text
2	Intrapersonal	Controllable	Video
3	Intrapersonal	Uncontrollable	Text
4	Intrapersonal	Uncontrollable	Video
5	Interpersonal	Controllable	Text
6	Interpersonal	Controllable	Video
7	Interpersonal	Uncontrollable	Text
8	Interpersonal	Uncontrollable	Video
9*	Unknown motivation	Unknown cause	Text
10*	Unknown motivation	Unknown cause	Video

Note: *indicates hanging control condition.

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an 18-year-old actress delivered the lines with neutral tone and expression. In an effort not to introduce additional information, the video was shot face-on from shoulders upwards, against a neutral background. Both video and text vignettes were hosted externally of the questionnaire, allowing participants to review the information at any stage during study completion.

Measures

Measures were presented in the order outlined below.

Perceived Motivations. Perceived motivations for self-harm were adapted from Bancroft et al. (1979, Bancroft, Skrimshire, & Simkin, 1976). In line with previous studies (e.g., Rodham et al., 2004), the motivations were presented in list format. The study assessed motivations across a series of ten, 9-point (*not likely–very likely*), Likert scales ("Megan wanted others to notice her;" "Megan wanted to frighten someone;" "Megan wanted to get her own back on someone;" "Megan wanted to direct other people's thoughts to be focused on her;" "Megan wanted to find out whether someone really loved her;" "Megan wanted to get some attention;" "Megan wanted to show how desperate she was feeling;" "Megan wanted to die;" "Megan wanted to punish herself;" "Megan wanted to get relief from a terrible state of mind.") High scores indicate high endorsement of construct.

Interpersonal communicative motives (here listed 1–7) demonstrated excellent internal consistency ($\alpha = .859$). However, the internal consistency for intrapersonal motivations was not optimal ($\alpha = .503$). Therefore, intent to die, self-punishment, and relief motivations were examined independently.

Helping Scenario. To assess the endorsement of helping and rejecting responses, participants were presented with the following hypothetical scenario:

> You are a volunteer in your local Accident and Emergency Department. You see Megan alone in the waiting room. When she moves her arm you notice it is covered in cuts and scratches.

They were then asked to endorse their intended response(s) to Megan on a series of four, 9-point Likert scales. The scales captured direct, self-initiated helping ("I would start a conversation with Megan)", responsive helping ("I would respond to Megan only if she started a conversation with me)", indirect helping ("I would get another volunteer to talk to Megan") and rejecting ("I would ignore Megan completely)" responses. High scores indicate high endorsement of construct.

Demographics. Age and gender demographics were captured.

Data Analysis

Data were analyzed using SPSS v. 21 for Windows. The overall level of missing data was extremely low (.3–1.1%). In all instances of missing data, cases were excluded pairwise. The data were non-normally distributed, therefore all analyses used do not rely on assumptions of normality.

A Kruskal-Wallis test was conducted to explore the effect of stated motivation on perceived motivations. In cases of between-groups differences, Mann Whitney U tests were performed to explore the location of significant differences. A series of Wilcoxon signed rank tests were then conducted, considering just participants in the hanging control conditions, to explore the relative endorsement of perceived motivations (interpersonal, suicidal, relief, self-punishment) in the absence of known stated motivation. Mann Whitney U tests were

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performed to explore the effect of presentation format on perceived motivation for self-harm. A series of Kruskal-Wallis tests were then employed to investigate the effect of controllability of stated cause on perceived motivation for self-harm. Again, in cases of between-groups differences, Mann Whitney U tests were conducted to explore the location of significant differences. Finally, a series of Spearman's Rho correlations were run to explore the relationship between both perceived motivation of self-harm (interpersonal, relief and self-punishment) and suicidal motivation and also perceived motivations of self-harm (interpersonal, suicidal, relief and self-punishment) and the endorsement of helping/rejecting responses.

RESULTS

Do Perceived Motivations Align with Stated Motivation for Self-Harm?

Vignette conditions were collapsed to explore the effect of stated motivation (intrapersonal vs. interpersonal vs. unknown). Results of a Kruskal-Wallis test indicated that the level of perceived interpersonal motivation was different between groups of differing stated motivation. Mann Whitney U tests indicated that both the unknown motivation and stated intrapersonal motivation groups were significantly lower in perceived interpersonal motivation than the stated interpersonal motivation group. There was no statistically significant difference in perceived interpersonal motivation between the stated intrapersonal motivation and unknown motivation groups (see Table 2).

The level of perceived suicidal motivation also varied between groups of differing stated motivations. Participants in the intrapersonal motivation group gave significantly higher ratings of suicidal motivations than those in the unknown motivation group. Conversely, those in the interpersonal motivation group rated significantly lower intent to die than the intrapersonal motivation group. There was no statistically significant difference in perceived suicidal motivation between the interpersonal motivation and stated unknown motivation groups.

The level of perceived self-punishment motivation differed between groups of differing stated motivations. Participants in the unknown motivation group were significantly higher in perceived self-punishment motivations than those in the interpersonal motivation group. There was no statistically significant difference in perceived self-punishment motivations between either the intrapersonal motivation and interpersonal motivation groups, or the unknown motivation and intrapersonal motivation groups.

Finally, the effect of stated motivation on perceived relief motivations for self-harm were explored. Again, the level of perceived relief motivation differed between groups of differing stated motivation. Here, participants in the intrapersonal motivation groups were significantly higher in the endorsement of relief motivation than both those in the unknown motivation and interpersonal motivation groups. There was no statistically significant difference in perceived relief motivations between the unknown motivation and interpersonal motivation groups.

Perceived Motivations Reported in the Absence of Information Regarding Motivation

A series of Wilcoxon signed rank tests were conducted within the unknown motivation group to explore the relative endorsement of differing perceived motivation in the absence of a clearly stated motivation for self-harm. Participants reported lower levels of endorsement of perceived interpersonal motivations ($Mdn = 4.714$, $IQR = 1.57$) than relief motivation ($Mdn = 8.000$,

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TABLE 2. **Descriptive Statistics, Kruskal-Wallis and Mann Whitney U Tests Comparing Perceived Motivations for Megan's Self-Harm between Stated Intrapersonal (n = 132), Interpersonal (n = 142) and Unknown (n = 81) Motivation Groups**

	Intrapersonal motivation (Intra)		Interpersonal motivation (Inter)		Unknown motivation (Unknown)			
	Mdn	**(IQR)**	**Mdn**	**(IQR)**	**Mdn**	**(IQR)**	χ^2	**Significant differences (r)**
Interpersonal	4.43	(2.57)	5.62	(1.96)	4.71	(1.57)	33.691***	Unknown < Inter (−.31)***; Intra < Inter (−.31)***
Suicidal	3.00	(3.00)	3.00	(3.00)	2.00	(2.00)	7.978*	Intra > Unknown (−.17)*; Inter < Intra (−.14)*
Self-punishment	7.00	(3.00)	6.00	(3.00)	7.00	(2.75)	6.011*	Unknown > Inter (−.16)*
Relief	9.00	(2.00)	7.00	(3.00)	8.00	(2.00)	20.498***	Intra > Unknown (−.22)**; Intra > Inter (−.26)***

Note. Mdn = Median, IQR = Inter-Quartile Range. Possible scale scores range from 1–9. Higher scores indicate higher endorsement of construct.
All analyses survive Bonferroni correction for multiple comparisons.
*Significance at $p < .05$.
**Significance at $p < .01$.
***Significance at $p < .001$.

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IQR = 2.000, $Z = -6.792$, $p < .001$, $r = -.38$), self-punishment motivation (*Mdn* = 7.000, *IQR* = 2.75, $Z = -6.107$, $p < .001$, $r = -.34$ and suicidal motivation (*Mdn* = 2.000, *IQR* = 2.000, $Z = -5.550$, $r = .31$, $p < .001$). Self-punishment ($Z = -7.311$, $p < .001$, $r = -.41$) and relief ($Z = -7.455$, $p < .001$, $r = -.41$) motivations were more highly endorsed than suicidal motivations. Perceived relief motivation was higher than perceived self-punishment ($Z = -2.811$, $p = .005$, $r = -.16$). Considering suicidal intent, it is interesting to note that while the median is low, participants used the full range of the scale (1–9).

Does Controllability of Cause of Behavior Influence Perceived Motivation for Self-Harm?

Vignette conditions were collapsed to explore the controllability of stated cause (controllable vs. uncontrollable vs. unknown) on perceived motivations for self-harm. Differences between groups were observed in perceived interpersonal motivations, $\chi^2(2) = 6.125$, $p = .047$ (Kushkal-Wallis test). Mann Whitney U tests indicated that participants in the controllable cause groups were significantly higher in perceived interpersonal motivation than those in the unknown cause group, $U = 4257.500$, $Z = -2.441$, $p = .015$, $r = -.17$. The controllable cause and uncontrollable cause groups did not differ in perceived interpersonal motivation. Similarly, there was no statistically significant difference between the uncontrollable cause and unknown cause groups in perceived interpersonal motivation.

A series of Kushkal-Wallis tests indicated there was no difference in perceived suicidal or self-punishment motivations between the differing controllability of stated cause groups. However, differences between groups were observed in perceived relief motivations, $\chi^2(2) = 9.381$, $p = .009$. Mann Whitney U tests indicated that participants in the uncontrollable cause group were significantly higher in the endorsement of relief motivation than both those in the unknown cause, $U = 4624.500$, $Z = -2.400$, $p = .016$, $r = -.16$ and controllable cause, $U = 7533.00$, $Z = -2.758$, $p = .006$, $r = -.17$ groups. There was no significant difference between the endorsement of relief motives in the unknown cause and controllable cause groups.

Does Presentation Format (Text vs. Video) Influence Perceived Motivations for Self-Harm?

Vignette conditions were collapsed to explore the effect of presentation format (text vs. video) on perceived motivations for self-harm. A series of Mann Whitney U tests indicated that there was no between groups difference in perceived interpersonal, suicidal, or relief motivations. However, participants in the text group reported significantly higher levels of perceived self-punishment motivation for self-harm than those in the video vignette group, $U = 13166.00$, $Z = -2.593$, $p = .010$, $r = -.12$.

Are Perceived Motivations Associated with Perceived Suicide Risk?

A series of Spearman's Rho correlations indicated that perceived suicidal motivation was positively associated with perceived self-punishment motivation (see Table 3). There was no relationship between perceived interpersonal motivations and perceived suicidal motivation. The positive association between perceived suicidal and relief motivations ($r = .122$, $p = .022$) did not survive conservative Bonferroni correction for multiple comparisons ($\alpha = .006$).

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TABLE 3. **Spearman's Rho Correlations Exploring the Relationships between Perceived Motivations and Endorsement of Helping/Rejecting Responses, N = 355**

	1	2	3	4	5	6	7
1. Interpersonal							
2. Die	.090$^{\Delta}$						
3. Self-punishment	.097$^{\Delta}$	**.239**†***					
4. Relief	**−.206**$^{\bullet}$***	.122$^{\times}$**	**.347**$^{\times}$***				
5. Direct, self-initiated helping[a]	−.070°	−.030‡	.088‡	**.261**$^{\times}$***			
6. Responsive helping[b]	.084°	.138‡*	.008‡	−.103$^{\times}$	**−.568**‡***		
7. Indirect helping[c]	.099$^{\bullet}$	.043$^{\times}$	.007$^{\times}$	−.007$^{\Delta}$	**−.284**$^{\times}$***	**.264**$^{\times}$***	
8. Rejecting[d]	**.170**$^{\circ}$*	.096‡	**−.142**‡**	**−.175**$^{\times}$***	**−.493**‡***	**.392**‡***	**.284**$^{\times}$***

Note. [a]"I would start a conversation with Megan," [b]"I would respond to Megan only if she started a conversation with me," [c]"I would get another volunteer to talk to Megan," [d]"I would ignore Megan completely." **Bold** survive Bonferroni correction ($\alpha > .006$, .05/8),*** < .001, ** < .01,* < .05. $^{\ddagger}n = 353$, $^{\times}n = 352$, $^{\Delta}n = 351$, $^{\circ} = 350$, $^{\bullet}n = 349$, two-tailed.

Are Perceived Motivations Associated with Helping/Rejecting Response Preferences?

A series of Spearman's Rho correlations were conducted to explore the relationship between perceived motivations for self-harm and the endorsement of helping/rejecting responses. Increased perceived interpersonal motivation was associated with an increased endorsement of rejecting (ignoring) Megan. Higher levels of perceived suicidal intent were associated with increased endorsement of responsive helping (see Table 3). However, this association ($r = .138$, $p = .010$) did not survive conservative Bonferroni correction for multiple comparisons ($\alpha = .006$). Of note, perceived suicidal intent was not significantly related to the endorsement of direct, self-initiated helping, eliciting the assistance of another (indirect helping), or rejecting behaviors.

Increases in both perceived self-punishment motivations and relief motivations were related to lower levels of rejection. Increased perceived relief motivations were also related to an increased propensity to advocate for direct, self-initiated helping. Perceived motivations for self-harm did not predict the endorsement of indirect helping.

DISCUSSION

The findings indicate that perceived motivations align with stated motivation for self-harm. Those randomised to the interpersonal stated motivation group reported higher levels of perceived interpersonal motivation than both other groups (intrapersonal; unknown). Similarly, a congruency between stated and perceived intentions was observed in intrapersonal, relief motivations; those in the intrapersonal stated motivation group are significantly higher in perceived intrapersonal motivation than both other groups (interpersonal; unknown).

Participants showed a comprehension of the complexities of self-harm and an appreciation that an individual may hold multiple motives simultaneously (Rodham et al., 2004; Scoliers et al., 2009; Suyemoto, 1998), even when a primary motivation was stated within the vignette. The congruency between stated and perceived motivations is reassuring. While the broader extant literature indicates an over-reporting of interpersonal motivations, commonly depicted as a means of manipulating or coercing others, or as attention seeking

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(McCann et al., 2007), our data suggest that the general public may be prepared to listen to and believe the stated motivations of others. Participants used the full range of the Likert scales (1–9) when reporting perceived motivations. We are therefore confident that they were not merely answering 'correctly'.

Interestingly, between group differences were also observed in perceived self-punishment and suicidal motivations, despite no information pertaining to the presence or absence of these dynamics being provided in the case vignettes. Participants in the stated intrapersonal motivation group gave significantly higher ratings of suicidal motivations than those in the unknown motivation group. Conversely, the stated interpersonal motivation group were seen to have lower intent to die than the intrapersonal stated motivation group. In the unknown stated motivation group, participants were lower in the endorsement of self-punishment motivations than those in the stated interpersonal motivation group. The finding that interpersonal motivation is associated with lesser perceived risk of suicide is in-line with the existing literature and is of concern, given that these individuals may be inaccurately deemed as being less in need of support from mental health services (Knowles et al., 2013).

However, some caution in interpretation is needed given that, while perceived suicidal intent was positively associated with perceived self-punishment and relief motives, and stated interpersonal motivation was associated with higher increased perceived suicidal motivation, there was no relationship between perceived interpersonal motivations and perceived suicidal motivation. Notwithstanding this caveat, taken together, our results indicate the importance of acknowledging that multiple simultaneous motivations frequently underpin self-harm behaviors (Suyemoto, 1998).

Perceived motivations in the absence of information regarding motivation (unknown stated motivation) were explored to try and gauge generally held public perceptions of the motivations underpinning adolescent self-harm. Participants showed higher endorsements of intrapersonal relief and self-punishment motivations than interpersonal communicative motivations. This is consistent with the pattern of motivations cited by young people who self-harm (e.g., Scoliers et al., 2009), suggesting some degree of consensus between generally held perceptions of the relative importance of motivations underpinning self-harm and those reported by adolescents with lived experience. In the context of the debate regarding the conceptualization of suicidal intent in self-harm behaviors (e.g., Kapur, Cooper, O'Connor, & Hawton, 2013), it is interesting to note that, although median endorsement of suicidal intent was low, participants used the full range of the suicidal motivation scale.

Participants in the text group reported significantly higher levels of perceived self-punishment motivation for self-harm than those in the video presentation group. We are unsure what this finding means. It could be related to the physical appearance of the actress used in the film. Research evidence indicates that intention to punish others is affected by the physical characteristics of the "other" (Li & Zhou, 2014). If participants are less willing to punish the actress themselves, it is feasible that they would also consider her less able to punish herself. Perceived innocence may also contribute to this. The video was deliberately neutral in tone and expression. This aimed to ensure that no extra information was available in the video vignettes that did not appear in the text format. However, it is possible that this neutrality contributed to the observed difference in perceived self-punishment motivations, especially if those in the text vignette conditions created more emotionally rich mental scenarios.

Controllability of stated cause also influenced perceived motivations. Participants in

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the controllable cause groups were significantly higher in perceived interpersonal motivations than those in the unknown cause group. Participants in the uncontrollable cause group were significantly higher in the endorsement of relief motivation than both those in the unknown and controllable cause groups. This has clear implications for psychoeducation and the need to highlight the complex and multifaceted nature of self-harm. Self-harm functions to afford people a means of coping with difficult and distressing situations (Chapman et al., 2006). It is unclear if, and how, this would differ with divergent causes. Considering attribution models of public discrimination (e.g., Corrigan et al., 2003), our findings have implications for the development of training activities to reduce attributions of personal responsibility beliefs (blame). Indeed, compassion is vital in responding to self-harm; Owens reports that participants presenting with self-harm "talked about feeling highly vulnerable, fearful and *desperate to be shown a little kindness*" (Owens et al., 2015, p. 2).

The significant relationships observed between perceived motivations and the propensity to help/reject in the A&E scenario further highlight the importance of understanding perceptions of self-harm. Participants were more likely to advocate rejecting Megan if they considered her self-harm to be interpersonally motivated, rather than driven by relief of self-punishment motivations, where participants were significantly less likely to strongly advocate rejection. This has important implications —as Knowles et al. (2013) note, self-harm that is socially motivated (either partially, or primarily) should not be dismissed as not genuine. Socially motivated self-harm should not be equated with the absence of psychopathology or distress. This may speak to the need to distinguish the negative connotations and rejecting attitudes associated with notions of attention-seeking, from the attention needing realities of self-harm. All those who self-harm both need, and deserve, understanding, support, and compassion. Increased perceived relief motivations were related to an increased propensity to advocate direct, self-initiated helping.

There was a positive trend between levels of perceived suicidal intent and the endorsement of responsive helping ($p = .010$, adjusted $\alpha = .006$). This warrants further exploration as any tendency toward responding only if Megan initiated the interaction could tentatively be interpreted as highlighting the need to emphasize asking directly about suicidality and to educate people as to how best to approach these potentially difficult conversations. This would fit within a broader consensus that encouraging reaching in to initiate helping (as well as encouraging reaching out if in distress) is important, given that someone who is distressed and suicidal may be unable to reach out.

Limitations

While the present research assesses the endorsement of a range of helping and rejecting responses, the study measured intention to act, rather than behavior itself. Further, in the helping scenario presented, participants were not provided with detailed information regarding the role of volunteer. We elected not to provide additional information to ensure that participants' responding was unlikely to be constrained by notions of duty of care. This was important as we aimed to investigate public perceptions and helping/rejecting responses. Therefore, future research would benefit from the addition of a behavioral helping measure. For example, participants could be given the opportunity to donate a proportion of an inconvenience allowance earned through study participation to a self-harm support/suicide prevention charity. The inclusion of such a component may also counter concerns

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regarding socially desirable responding. While a possible influence, we argue that socially desirable responding is unlikely to explain our results. Online, computerized research protocols have proven useful in obtaining data on sensitive topics, increasing participants' ease and enhancing disclosure (Tourangeau & Yan, 2007). Furthermore, in the current study, participants endorsed the full range of behavioral responding (e.g., some people said they would ignore Megan, get another person to deal with her, or not initiate interaction). It is arguably less socially acceptable to state that you would ignore Megan completely, although participants felt able to do so, using the full range of the Likert scale (1–9). Future research would benefit from exploring the congruency between stated intended behavioral response and behavioral responding (e.g., donations placed to assist those struggling with self-harm).

Future research would also benefit from gauging the perceived outcomes of the intended actions (e.g., it is possible that someone would elect to signpost Megan to another person as they want her to receive the most suitable source of support, but feel they are ill-equipped or unable to provide this). Additionally, a forced-choice scenario, in which participants are required to elect one behavioral response to Megan, may also increase task fidelity.

The current study examined the effects of stated motivation for self-harm, stated cause, and presentation format independently. While this offers novel insights, future research may benefit from the exploration of the combined effects of these depiction characteristics. Considering the dynamics of the vignette further, while the literature guided the creation of the case vignette in terms of demographics and methods, these factors may have influenced responding. The current study could therefore be extended by considering the effect of manipulating key characteristics within the depiction of self-harm. The gender of the character within the case vignette and the method of injury may be important variables to explore. Further, understanding perceptions of, and responses to, first time versus repeat episode self-harm also warrants investigation. Finally, it is important to note that participants may be responding to both the nature and controllability of the stated cause of self-harm. Therefore, exploring whether the controllability effects observed are replicated with alternative uncontrollable and controllable causes would be advisable.

Implications

Notwithstanding these limitations, the study offers novel insight into public perceptions of self-harm. To the best of our knowledge, this is the first study to consider factors influencing public perceptions of the motivations for adolescent self-harm, as well as the associations between perceived motivations for self-harm and the endorsement of helping or rejecting behaviors. Understanding the dynamics that influence perceived motivations for self-harm is crucial, as perceived motivations may directly influence the helping/rejecting response given to those who self-harm (Knowles et al., 2013). Initial reactions upon disclosure of self-harm are critical, given their influence on subsequent disclosures and help-seeking (McDougall et al., 2010).

Results highlight the need for public awareness and education programs concerning the complex nature of self-harm and the likely interplay of multiple determinants and motivations. Our findings outline the need to reinforce the message that, when there is a social aspect to the motivations underpinning self-harm behavior, this does not invalidate the distress associated with harming or reduce the need for helping responses. This work contributes to a growing body of research that highlights the need to distinguish the negative connotations and rejecting attitudes associated with interpersonal

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motivation and notions of attention-seeking, from the attention needing realities of self-harm. All those who self-harm both need, and deserve, understanding, support, and compassion. It is therefore critical that all potential support networks are able to identify and respond appropriately to signs of distress (Nielsen, Sayal, & Townsend, 2017). Given the constraints on current clinical services and the fact that most people who self-harm do not present to clinical services (McMahon et al., 2014), it is vital that we understand how those who self-harm are perceived in the community. First responses to distress are most likely to be encountered within these informal networks (Rowe et al., 2014) and these perceptions will drive how people respond. Our work is a first step in understanding this process in more detail.

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COMMENT

"Great Powers and Great Responsibilities": A Brief Comment on "A Brief Mobile App Reduces Nonsuicidal and Suicidal Self-Injury: Evidence From Three Randomized Controlled Trials" (Franklin et al., 2016)

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Online and mobile mental health applications (apps) herald exciting new opportunities for the treatment and prevention of self-injurious thoughts and behaviors (SITBs). With such rapid technological advances, it is paramount that health care innovation not be achieved to the detriment of intervention quality. Franklin et al.'s (2016) therapeutic evaluative conditioning (TEC) app is a novel and timely addition to the mobile health landscape; uncommonly for such apps, it is evidence based. There are, however, several crucial challenges to be surmounted for TEC to be successful; arguably, interventions ought to build lasting skills that can be subsequently and consciously recruited to manage distress beyond the intervention period. Furthermore, SITBs are a coping mechanism (albeit maladaptive); thus, extinguishing SITBs via TEC must be bolstered by the development of alternative coping strategies, particularly if the psychological distress that underlies SITBs is not addressed therapeutically. Stigma exacerbates the psychological distress of those engaging in SITBs; therefore, we question whether the types of stimuli employed in TEC may further add to this stigma, potentially affecting future help seeking. One solution may be to explore a positive-only TEC; enhancing positive self-worth may provide a more sustainable and meaningful treatment target, particularly when used as an adjunct to therapy or as a waiting list intervention. Mobile interventions for SITBs bring unique ethical challenges, including individuals' right to be fully informed about potentially distressing stimuli. This commentary aims to highlight the methodological and ethical challenges faced by TEC and encourage further discussion around this topic.

What is the public health significance of this article?
This commentary highlights pressing ethical and methodological issues for development of mobile health applications for self-injurious thoughts and behaviors. Whilst the study by Franklin et al shows that TEC holds promise, the maintenance of behavior change does not appear to persist, potentially limiting the long-term efficacy of TEC. The exact mechanism(s) by which TEC effects behavior change is not known; Whether a positive-only TEC may be equally or more effective is an empirical question and would resolve many ethical concerns regarding the app.

Keywords: self-harm, nonsuicidal self-injury, suicide, mobile app, treatment

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> The possession of great powers and capacity for good implies equally great responsibilities in their employment.
>
> —Henry W. Haynes

Franklin and colleagues (2016) present a timely evaluation of a brief mobile mental health application (app), developed as a treatment for self-injurious thoughts and behaviors (SITBs). It is encouraging to see these "initial steps" (p. 544) in evidencing such an app, given that (a) it is estimated that more than 2% of the global burden of disease will be attributable to suicide by 2020 (World Health Organization, 2012); (b) current service provisions cannot meet mental health needs (Leigh & Flatt, 2015), with substantial treatment barriers identified, including cost, scale, availability, and autonomy (Mojtabai et al., 2011); (c) access to "traditional" therapies for SITBs may be limited by difficulties around disclosure, including fear of consequences and stigma (Jacobs, Walsh, McDade, & Pigeon, 2009); and (d) while evidence supporting the use of mental health apps is increasing (e.g.,

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Bakker, Kazantzis, Rickwood, & Rickard, 2016; Dagöö et al., 2014), the burgeoning industry is a largely unregulated free market in which the majority of applications available are not evidence based (Anthes, 2016; Bakker et al., 2016; Donker et al., 2013). Indeed, there is a dearth of efficacy data for suicide prevention apps (Larsen, Nicholas, & Christensen, 2016).

Online and mobile mental health apps are an increasingly popular platform for self-delivered treatments (Anthes, 2016; Leigh & Flatt, 2015). They have the potential to be widely distributed and well accepted (when free; Proudfoot et al., 2010) and to play an important role in the future of mental health care provision (Bakker et al., 2016; Simon & Ludman, 2009). Rapidly developing technologies offer exciting new frontiers for health care provision but are not without their caveats (de Beurs, Kirtley, Kerkhof, Portzky, & O'Connor, 2015). It is vital that innovation in health care is not achieved to the detriment of intervention quality. In this article, we highlight a number of challenges for the therapeutic evaluative conditioning (TEC) paradigm to overcome if it is to achieve its full and intended potential.

TEC: A Brief Summary of Franklin et al. (2016)

TEC aims to reduce the availability of self-injury through the simultaneous pairing of target and valenced stimuli. The active TEC, reported by Franklin and colleagues (2016), encompasses three components: (a) a SITB-related stimulus paired with an unpleasant stimulus, (b) a self-related word paired with a pleasant stimulus, and (c) a neutral stimulus paired with a neutral stimulus (see the online supplemental material; Franklin et al., 2016). Across three randomized control trials, Franklin and colleagues explored the effect of active TEC (vs. a neutral pairing–only control app) on the frequency of nonsuicidal and suicidal thoughts and behaviors in adults, reporting multiple episodes of self-cutting in the month prior to participation (in addition to these inclusion criteria, participants in Study 3 reported suicidal behavior in the past year). Stimuli in Studies 1 and 2 targeted nonsuicidal self-injury, depicting predominantly self-cutting. Study 3 employed suicide- and death-related stimuli in addition to self-cutting–related stimuli (e.g., depictions related to overdose, jumping from a height, words related to death). Those in the active TEC reported fewer self-cutting episodes during the intervention month. However, these effects were not maintained at 1-month follow-up.

Manipulation or Intervention: Does TEC Help Individuals Build Resources?

While maladaptive, nonsuicidal self-injury (NSSI) serves a purpose; the behavior is functional, allowing a means of coping (e.g., Chapman, Gratz, & Brown, 2006). TEC does not appear to address the functionality of NSSI (beyond perhaps proxy manipulations of self-punishment motives through aversion to self), nor does it appear to support the development of alternative coping. This warrants further evaluation, given that removing (albeit maladaptive) coping, without first cultivating the development of alternative coping responses or indeed activating additional support resources, may lead a distressed and at-risk individual to feel unable to cope and without options. Alternatively, it may be that reducing the availability of self-injury through evaluative conditioning improves individuals' self-concept and thus enhances self-perceived coping abilities. Whether individuals' coping resources and capacity are enhanced or diminished by TEC should form a component of future evaluations of the app.

In order to meaningfully move toward recovery, treatments need to address functionality and ameliorate underlying distress to ensure global reductions in pathology rather than substitute manifestations of psychological pain (Ernhout, Babington, & Childs, 2015; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). While it is encouraging that Franklin and colleagues (2016) noted no effect of active TEC on the endorsement of non-SITB dysregulated behaviors (vs. control TEC) during the treatment month, it is important to note that the consequences of *extended* TEC use on differing manifestations of distress or emotional dysregulation are unknown. This is important—while behaviors may co-occur, behavioral substitutions and fluctuations between functionally equivalent behaviors may also develop over time (Chapman et al., 2006; Ernhout et al., 2015; Hayes et al., 1996).

An intervention should build skills. Therefore, it could be argued that TEC is best conceptualized as a manipulation rather than an intervention; indeed, individuals engaged in the app are naïve to the conditioning paradigms unpinning the procedure. Therefore, those accessing the app may undergo a temporary behavioral manipulation as opposed to a lasting behavior change intervention, which gives individuals in distress psychological or behavioral tools they can consciously draw upon in subsequent periods of need. TEC's potential to produce longer term behavioral change is unknown, as is whether or not it endows the individual with any positive skills or coping resources (i.e., protective factors) with which he or she may approach future instances of SITBs. This may provide a partial explanation as to why treatment effects are not observed after disengagement with the app; indeed, Franklin et al. (2016) note that "persistent TEC effects may require consistent TEC use" (p. 452). In addition, the measures used to assess treatment effects within these studies may be overlooking important domains of action for TEC that may even further elucidate its underlying mechanisms. The 1- to 2-month study period of decoupling individuals' self-concepts from their SITBs may represent a crucial transition period, whereby following engagement with TEC, individuals' SITBs remain relatively constant while alternative coping strategies are explored and cognitions regarding SITBs undergo change, such as a decrease in positive outcome expectancies for self-injury (Hasking & Rose, 2016). Thus, assessing alternative outcomes relating to other coping strategies or individuals' beliefs about SITBs may demonstrate change where episodes of self-cutting, for example, did not exhibit significant change after TEC use. Further prospective work is also required to assess TEC's utility in potentiating lasting change in the perception of self-injury, self-concept and SITBs.

Stigmatization and Consequences for Future Help Seeking

It is well documented that SITBs are highly stigmatized. Such appraisals have negative ramifications; common barriers to help seeking include stigma and fear of the consequences surrounding disclosure of SITBs (Jacobs et al., 2009). Indeed, adolescents explicitly highlight notions of shame as limiting their willingness to formally seek help (Fortune, Sinclair, & Hawton, 2008b; Jacobs et al., 2009). We are concerned that instilling

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negative associations with SITBs (e.g., presenting self-injury–related images with words such as *vile*, *shame*, and *disgust*) may have unintended negative consequences for subsequent help seeking and disclosure.

Typically, reducing stigma and nurturing open attitudes toward help seeking are viewed as central tenets of NSSI prevention (Fortune, Sinclair, & Hawton, 2008a). In contrast, TEC explicitly trains individuals to associate SITB-related stimuli with negative stimuli, presenting NSSI imagery with aversive images and words, including *shame*. Whether instilling such negative evaluations increases self-stigma and/or the anticipation of negative evaluation from others, which may then impede subsequent disclosure of SITBs, can and should be investigated empirically. This is of particular importance given the uncertain longevity of treatment effects of TEC beyond the month of active intervention; if distress is ongoing, individuals need to feel able to seek help at a later date and not feel further burdened by stigma and perceived consternation.

Identifying the Active Component(s): Scope for a Self-Related–Only TEC?

TEC was designed to address two treatment targets: (a) to increase aversion to SITB-related stimuli and (b) to increase positive evaluation of self-related words. We advocate for investigating the value of experimentally decoupling these components. Specifically, we recommend the systematic evaluation of a revised active TEC with the single treatment target of increasing positive evaluation of self-related words to explore whether or not this self-specific target, in the absence of a SITB-specific target, produces equivalent treatment effects.

The value of embedding positivity within SITB treatments cannot be underestimated; indeed, hope is vital. There is a growing body of literature indicating that self-aversion may be an important psychological factor in SITBs:

- Individuals who self-injure are more self-critical than those who do not (Glassman, Weierich, Hooley, Deliberto, & Nock, 2007).
- Self-hate is an important transition in the pathway to SITBs (Townsend et al., 2016).
- Self-criticism eliminates a potential barrier to self-injury, allowing an individual to contemplate behavior engagement that may otherwise be rejected (Hooley & St. Germain, 2014).

In addition, preliminary empirical evidence suggests that manipulating this treatment target in isolation may generate favorable effects; in the laboratory, a brief (approximately 5 min) experimental positive self-worth manipulation can be effective in producing a significant reduction (49.8%) in pain endurance in those with a history of NSSI (Hooley & St. Germain, 2014). Moreover, the results of Study 1 reported by Franklin and colleagues (2016) indicated that within this sample, TEC diminished aversion to self, which was related to reduced self-cutting, NSSI, and suicidal ideation and planning, whereas increased aversion to SITB-related stimuli was associated with decreases in NSSI and suicidal ideation and planning but not self-cutting episodes (the behavior primarily depicted in TEC). To this end, the efficacy of a self-related–only TEC is an empirical question and warrants exploration.

Content Warning: Does TEC Expose At-Risk Individuals to Potentially Distressing Material?

In addition to further elucidating the active component(s) within TEC, a modified positive-only protocol would guard against the potential for increasing self-stigmatization in at-risk individuals. Additionally—and importantly—such a revision would ensure that at-risk individuals are not exposed to potentially distressing SITB-related images. TEC—and the subsequently released Tec-Tec app (http://tectectech.com/)—utilizes a range of NSSI imagery, predominantly depicting self-cutting (e.g., a knife touching skin, a knife appearing to cut the forearm to draw blood, graphic content of bloody wounds apparently made by the knife). While produced as a synthesis of digital processing techniques and theatrical makeup, these purposefully high-definition images are designed specifically to replicate self-cutting processes and injuries and are designed so as to appear genuine to the end user.

Researchers have advised caution against exposing at-risk individuals, particularly young people, to such content because it may be upsetting or distressing (Whitlock, Lader, & Conterio, 2007; Whitlock, Powers, & Eckenrode, 2006; Whitlock, Purington, & Gershkovich, 2009). The need for safeguards around such online content is well established. Indeed, while in most Internet modalities engagement is unmoderated, self-harm and suicide-specific forums often impose policies explicitly prohibiting graphic content or necessitating that content warnings be given. It is important that app developers be equally careful when considering the potential harms of exposure to graphic depictions of injuries, not least as the images do not need to be medically severe wounds to be difficult for viewers (Whitlock et al., 2006, 2007, 2009). Currently, no specific indication of the depictions of self-injury is given in the released Tec-Tec app. Furthermore, only positive and neutral examples of pairings are shown in the app description. While iatrogenic effects of exposure to self-injury–related stimuli in the context of research have been shown to be minimal, they are most pronounced for images (as opposed to words), and the latent effects are unknown (Cha et al., 2016). When participating in research, individuals have the benefit of informed consent to decide whether tasks involved in participation may compromise their safety; individuals also have the benefits of full debriefing and support signposting. The balance of ensuring that participants are sufficiently informed, with the implicit nature of TEC, must be carefully considered.

How Does It Feel? TEC Development: A Role for Patient and Public Involvement?

We feel that it is vital to explore the "lived experience" of using the TEC app. While we pinpoint a number of challenges informed by the extant research literature, it is equally (if not more) important to consider the costs and benefits of the app informed by the experience of being engaged with it. Such involvement is likely to elucidate novel, self-generated points of consideration. In addition to exploring these, we would recommend presenting the researcher-selected stimuli to a focus group of individuals with a history of self-injury, particularly young people; those with direct experience of SITBs are perhaps more nuanced in their appraisals of content and best placed to recognize potentially difficult (or positive) aspects of the stimuli selected (Whitlock et al., 2007).

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Furthermore, by speaking to individuals who have used TEC, it may be possible to elucidate the motivating factor(s) for trying out and maintaining the use of such an app, especially in the absence of external incentives (e.g., monetary compensation based upon TEC point score). It is important to understand to whom the app appeals and why, how it meets their needs, and for how long their needs are met.

Supplementation and Enhancement, Not Stand-Alone?

The way in which technology-mediated interventions may be best distributed remains an important avenue of research. Indeed, there is much debate about whether interventions should be openly accessible as stand-alone packages or incorporated as adjunct or augmentation tools to existing health care. In the treatment of self-injury, it is widely acknowledged that even the most efficacious of existing therapies for SITBs result in reduction, as opposed to total extinguishment, of the behaviors (e.g., Muehlenkamp, 2006; Nock, Teper, & Hollander, 2007). Evidence-based apps may serve as a useful enhancement of such therapies. It is critical, however, that the novelty of such an app-based intervention does not lead us to tilt at therapeutic windmills when its superiority, or even equivalence, to other interventions is, as yet, unknown. Significant gains may be derived from the integration of apps into existing treatment options (Luxton, McCann, Bush, Mishkind, & Reger, 2011; Price et al., 2014) rather than replacing existing evidence-based therapies (e.g., cognitive behavioral therapy for adults; Hawton et al., 2016). In the case of TEC, this supplementation and enhancement approach may ameliorate some concerns regarding the unmonitored and unsupported use of an intervention by potentially vulnerable individuals, allowing them a clinical safety net during a potentially stressful period of behavioral change.

Conclusion

TEC manipulates the evaluations of SITB- and self-related stimuli through successive associations and aims to reduce availability of SITBs. It may be the case, however, that TEC neither supports the development of alternative, more adaptive coping nor supports the identification of resources that the end user can consciously draw upon in times of need—this is something to be addressed in future evaluations of the app. We are concerned that reducing the availability of (albeit maladaptive) coping options, without first supporting alternative coping, has the potential to leave at-risk individuals feeling unable to cope. This perceived lack of ability to cope may have detrimental consequences that stand in opposition to the hopeful intentions of TEC. Self-injury is a behavioral manifestation of distress. In line with other researchers (e.g., Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007), we feel that meaningful interventions that are likely to produce and maintain positive change over time need to not only reduce SITB rates (e.g., number of episodes or injuries) but also need to address the factors precipitating these thoughts and behaviors. This is likely to include alleviating psychological distress and increasing adaptive coping and help seeking. The longer term effects of TEC are, as yet, unknown and should be the subject of future prospective studies. Patterns in TEC interaction also warrant exploration (e.g., do people re-engage with TEC in periods of acute need?).

We urge careful consideration of the downstream consequences of teaching negative evaluations of SITBs and the implications this may have for future help seeking, not least as TEC treatment effects do not appear to persist once TEC use has ceased. Furthermore, we feel that it is of paramount importance to further explore the effect of exposing at-risk individuals to graphic images of self-harm, particularly when unmonitored. To this end, it is vital to consider the lived experience of being exposed to this content in the absence of additional support and signposting, especially given that the Tec-Tec app currently does not give explicit content warnings regarding this imagery. Potential "side effects" of TEC (e.g., increased feelings of stigma) represent empirically testable evaluation components that should be built into future studies.

Based upon the research conducted by Hooley and St. Germain (2014), we hypothesize that a modified, positive-only TEC focused on decreasing self-aversion may be effective and could address a number of these concerns. If evidenced, this revised TEC may be a useful and flexible adjunct to tailored and compassionate clinical intervention (e.g., between sessions in response to SITBs, as a waiting list intervention, etc.), providing an additional hopeful component "upskilling" individuals in the context of a multifaceted approach. In short, TEC has potential as another tool within existing therapeutic tool kits rather than as a replacement for these. A key challenge, however, is the successful integration of such an mHealth app into preexisting therapeutic contexts (see Luxton et al., 2011, for a discussion).

We hope that the points raised in this commentary will prompt further systematic evaluation of mental health intervention apps, considering both costs and benefits. Such technologies could have a potential paradigm-shifting role in mental health treatment provision, including for SITBs, and we are excited about the potential of future modified versions of TEC that take into consideration some of the challenges we have outlined.

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RESEARCH ARTICLE

Commit* to change? A call to end the publication of the phrase 'commit* suicide' [version 1; referees: 2 approved]

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Abstract

Background. Countering stigma is a fundamental facet of suicide prevention efforts. Integral to this is the promotion of accurate and sensitive language. The phrase 'commit* suicide' has prompted marked opposition primarily due to the connotations of immorality and illegality. **Methods.** The study investigated the frequency of the use of the wordstem 'commit', in relation to self-harm and suicidal behaviours, in the three leading suicide-specific academic journals between 2000 and 2015. **Results.** One third (34%) of articles published since the year 2000 used the word 'commit*' when describing an act of self-harm or suicide. Over half of these articles (57%) used the phrase on more than one occasion, with 6% using it more than 10 times in the same manuscript. The percentage of papers utilising the word 'commit*' has fluctuated over time, but there is a promising downward trend in the use of this phrase from 33% in 2000 to 13% in 2015 ($p < 0.001$). **Discussion.** We advocate for the implementation of publication requirements regarding the language used when discussing suicide. Whilst we call for collective responsibility amongst academics and clinicians, editors hold a unique position in ensuring that outdated, inaccurate and stigma-laden terms are expunged from the scientific literature.

Open Peer Review

Referee Status: ✓ ✓

	Invited Referees 1	2
version 1 published 06 Dec 2016	✓ report	✓ report

1 **Katie Dhingra**, Leeds Beckett University UK

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Comments (0)

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Introduction

Suicide is a complex, multifaceted behaviour indicative of psychological distress (Williams & Pollock, 2001), which is also highly stigmatised (Cvinar, 2005). This is of concern, given that mental health stigma impacts negatively upon both help-seeking behaviours and help-provision (Corrigan *et al.*, 2003; Reynders *et al.*, 2014). Consequently, a fundamental facet of suicide prevention efforts must be the eradication of stigma. Integral to this is the promotion of sensitive language that is accurate, non-divisive and does not propagate unhelpful connotations.

Implications of language - immorality and illegality?

"We now live in a time when we seek to understand people who experience suicidal ideation, behaviours and attempts, and to treat them with compassion rather than condemn them." (Beaton *et al.*, 2013).

While a range of potentially unhelpful terminology has been identified (e.g., Silverman, 2006), the phrase 'commit* suicide' has perhaps prompted the most publicised opposition (to aid readability, 'commit* suicide' will be noted as 'commit suicide' from here on in. The comments made, however, extend to all suffixes of the stemword when used to discuss suicide). Although 'commit' has a number of meanings, the phrase is most commonly associated with negativity and wrong-doing (Beaton *et al.*, 2013; Silverman, 2006); people *commit* crimes, people *commit* moral atrocities.

A recent global review of the legal status of suicide indicated that in the majority of countries (and states) suicide is not a crime; of the 192 criminal codes obtained, suicide was illegal in only 25 countries (with a further 20 countries adhering to Sharia or Islamic law) (Mishara & Weisstub, 2016). Most nations have updated their legislation to decriminalise suicidal behaviour. However, commonly employed nomenclature does not always reflect this. As well as carrying connotations of illegality, the phrase 'commit suicide' can also suggest immorality or dishonour (Silverman, 2006). While opinions regarding suicide vary, it is unusual to associate the term 'commit' with a public health concern, or indeed a mental health tragedy. Further, this phraseology does not acknowledge the psychological distress associated with suicidality (Silverman, 2006).

The impact of language

"So, to say that someone "committed" suicide feels offensive to me, and I'm not easily offended. The offense is in the inaccuracy." (Kyle Freeman, 2015).

Arguably our language should reflect the needs and experiences of those directly affected by suicide. Indeed for many it can be insensitive language that amplifies the distress of an already difficult situation, increasing feelings of blame, guilt and rejection (Kyle Freeman, 2015, https://themighty.com/2015/07/why-you-shouldnt-say-committed-suicide/; Maple *et al.*, 2010; Silverman, 2006; Sommer-Rotenberg, 1998); the negative connotations inherent in stigmatised language may inadvertently exacerbate vulnerabilities (Cvinar, 2005).

Committed to change? Publication guidelines

In academic literatures there is a precedent for demanding considered language and the eradication of stigmatised phraseology from published parlance. For example, the American Psychological Association editorial guidelines caution against referring to people in diagnostic terms, advocating instead for the adoption of 'people first' language (e.g., '*people who* self-harm', rather than 'self-harmers'; '200 *people who* took their lives by hanging', rather than '200 suicides by hanging') (American Psychological Association, 2010). Subject specific guidelines have also been published by some journals, highlighting problematic terms and favoured alternatives (e.g., terms to avoid or reconsider in the eating disorders field; Weissman *et al.*, 2016).

Considering suicide, outside of academia there are a number of guidelines for the reporting and discussion of suicide (e.g., Hunter Institute of Mental Health, 2014; Samaritans, 2013; World Health Organization, 2008). Many of these media frameworks explicitly highlight the difficulties of the phrase 'commit suicide' (e.g., World Health Organization, 2008). While some researchers have highlighted that the term 'commit suicide' should be considered within "possible terms to be removed from the lexicon" (Silverman, 2006), to the best of our knowledge, there are currently no explicit guidelines, or indeed requirements, in place regarding phraseology in academic publication.

Current study

The phrase 'commit suicide' is a pervasive term. As researchers, clinicians and suicidologists, we arguably hold a collective responsibility to lead by example, to take heed of the extant literature and to listen to the voices of those with lived experience and expertise. The current study seeks to explore whether the marked opposition to the term 'commit suicide' is reflected in a decrease or indeed abolition of its publication. Specifically, the study aims to investigate whether:

(i) The phrase 'commit suicide' is still being published in the three leading suicide-specific academic journals;

(ii) There have been reductions in the use of the stemword 'commit' in relation to acts of self-harm and/or suicide.

Methods

We investigated the frequency of use of the wordstem 'commit', in relation to self-harm and suicidal behaviours, in three high impact suicide-specific academic journals between 2000 and 2015. We assessed the trend during this time period, as well as differences in the frequency of use between the journals.

Inclusion and exclusion criteria

We selected the three leading academic journals on suicide and suicide prevention: Crisis, Archives of Suicide Research (ASR) and Suicide and Life-Threatening Behavior (SLTB). These journals were chosen because they: i) have a long history of publishing articles in the field of suicidology (at least 20 years); and ii) represent the peer-reviewed journals associated with the two main international associations of suicide researchers. We included all article types within all issues of each journal between

2000 and 2015. Journal issues prior to 2000 were inaccessible online and therefore excluded. Archives of Suicide Research did not publish issues in 2000 and 2001.

Data collection

Each author collected data from a single journal using a standardised data extraction form. For each article within an issue, we collected data on the number of times the word stem 'commit' was used outside quotation marks or inverted commas in the title, abstract and main text. Data for all article types were extracted, including editorials, letters, book reviews (etc.), as well as empirical papers, reviews and meta-analyses.

Statistical analysis

To adjust for the number of articles per journal each year, we tabulated and graphed the frequency of the word stem 'commit' as a percentage of the total papers in each year. All analysis was conducted in Stata 14 (StataCorp, College Station, TX). We also tested to see whether there was evidence of a linear reduction, with a Chi-squared test for linear trend, in the use of the phrase 'commit suicide' overall.

Results

There were 2298 articles published in the three main suicide related journals since the start of the millennium (2000–2015). Of these, 781 (34%) articles used the word 'commit' when describing an act of self-harm or suicide. Over half of these articles (57%) used the word 'commit' in more than one instance in the same paper, with 6% using it more than 10 times in the same manuscript.

The percentage of papers utilising the word 'commit' has fluctuated over time, but in all journals included in this review there has been a reduction in the use of this word (Figure 1; p-value for trend < 0.001). In the most recent year (2015) across all three journals, 13% of articles use the word 'commit' (SLTB, 18%; CRISIS, 6%; and ASR, 16%).

Discussion

In all three of the leading suicide-specific academic journals, the phrase 'commit suicide' continues to be published. Reassuringly there have been reductions in the use of this term in relation to acts of self-harm or suicide. However, in 2015 one in eight articles still used this outdated, largely inaccurate and stigmatised phrase.

The International Association for Suicide Prevention (IASP) collaborated with the World Health Organization (WHO) to produce the 2008 revision of the 'preventing suicide' framework for media professionals (World Health Organization, 2008). This resource specifies that "the phrase 'committed suicide' should not be used because it implies criminality, thereby contributing to the stigma experienced by those who have lost a loved one to suicide and discouraging suicidal individuals from seeking help" (p. 8). It is therefore perhaps particularly surprising to note the continued publication of the phrase 'commit suicide' since 2008 in Crisis, the journal of IASP.

As individuals we each hold a position of power and responsibility. As researchers, clinicians and suicidologists we hold a collective responsibility for the language we propagate and the messages this imparts. Therefore, we believe that the phrase 'commit suicide' should be avoided in all arenas, including clinical and professional practice, teaching, when interacting with peers, colleagues and the general public, in our everyday lives and, importantly, in our academic writing. While it is noted that in the 25 countries in

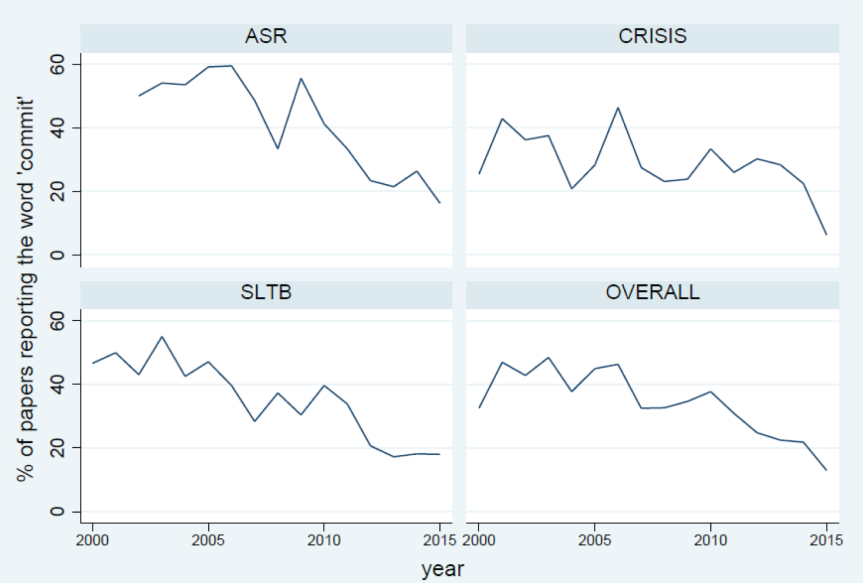


Figure 1. Percentage of papers reporting 'commit*' in relation to suicide or self-harm behaviours, by journal (2000–2015), *p*-value for trend < 0.001. Note: Instances in which 'commit*' is directly quoted (e.g., in qualitative interview data that is reported to support a theme) are excluded from this count. ASR, Archives of Suicide Research; SLTB, Suicide and Life-Threatening Behaviour.

which suicide remains illegal, the use of phrase is perhaps more understandable, it is of paramount importance that we hold ourselves to the standards to which we seek to hold others (e.g., journalists, politicians, opinions leaders). Much as suicide-specific media guidelines advocate for the consideration of appropriate language choices, we believe that: i) journals should include in their author guidelines a note necessitating appropriate language; and ii) journal reviewers should take responsibility in insisting that language is amended if inappropriate.

Suicide is a cause of death and our language should reflect this; people *die by* suicide. Guidelines necessitating the abolition of the phrase 'commit suicide' (in non-quoted prose) may be one step towards facilitating this goal. Indeed, editors hold a unique position in ensuring that outdated, inaccurate and stigma-laden terms with criminal overtones are expunged from the scientific literature. Addressing the language we use affords an important opportunity to meaningfully contribute to the eradication of the stigma surrounding suicidality.

This study considered only instances in which the phrase 'commit suicide' was used outside of quotation marks or inverted commas. This inclusion criteria was imposed for two primary reasons: i) we believe that individuals have the right to describe their own experiences in their own terms; therefore, particularly in qualitative or mixed methods papers, the stemword 'commit' may appear appropriately within a verbatim quotation from a participant; and ii) the phrase 'commit suicide' may be included within quotation marks in papers highlighting the problematic nature of this language (e.g., Silverman, 2006). Indeed the phrase 'commit suicide' frequently appears within inverted commas throughout this article. Future research may seek to explore trends in the frequency and nature of use of the stemword 'commit', in relation to self-harm and suicide, within quoted prose.

We hope that the current study will act as a catalyst for discussion and prompt further consideration of: i) the inherent connotations of the language frequently employed within in the field; ii) how we may inadvertently perpetrate stigma; and iii) how we might work to eradicate this stigma. This will only be achieved by working collaboratively with those with lived experience.

Limitations

The study must be interpreted within the context of its limitation. Herein, it is important to note that 'commit' is not the only potentially difficult language propagated in the literature. For example, in the United Kingdom the Royal College of Psychiatrists have recently updated their language around self-harm ('deliberate self-harm' to 'self-harm') in light of concerns highlighted by mental health service consumers and those with lived experience of self-harm (Silverman, 2006). A number of other potentially difficult phrases persist within academic communications (e.g., labelling language such as 'self-harmers', 'ideators', 'jumpers', phrases such as 'copy-cat') against a backdrop of non-standardised and non-agreed nomenclature. Indeed determining appropriate and unhelpful terms will require review and augmentation over time.

The current study examined trends since the start of the millennium in the three leading suicide-specific academic journals. The study examined all online material published within this 15 year period. However, it is important to note that suicide is covered across a range of journals and fields (e.g., psychology, sociology, psychiatry, epidemiology, public health), each of which will have established traditions. While we argue for the role of dedicated suicidology journals, researchers and clinicians leading by example, to make meaningful and lasting change further work must consider how guidelines could translate across disciplines and platforms (e.g., consideration must be given to the language propagated in academic proceedings, press releases and at conferences).

Notwithstanding these limitations, the present study offers novel insight into recent trends in the publication of the stemword 'commit' used in relation to self-harm and suicide. Given the marked opposition expressed in regards to this phraseology, it is perhaps surprising to see the continuation of its publication across the three leading suicide-specific academic journals and indeed propagated in academic proceedings and conferences. Our results suggest that the introduction of author guidelines surrounding language use may be necessary to ensure the abolition of outdated, inaccurate and stigma-laden terms and the adoption of preferred phraseology.

Data availability

Available online via the Open Science Framework: https://osf.io/br8jd/; DOI, 10.17605/OSF.IO/BR8JD (Knipe, 2016).

Author contributions

Study conception: DK; Study design: EN & DK; Acquisition of data: all authors; Analysis: DK; Interpretation of data: all authors; Drafting of manuscript: EN; Critical revision: all authors.

Competing interests

No competing interests were disclosed.

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Open Peer Review

Current Referee Status: ✔ ✔

Version 1

Referee Report 23 February 2017

doi:10.21956/wellcomeopenres.11132.r20483

✔ **Sarah Rowe**
Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, UK

The title and abstract are appropriate and accurately reflect the work that has been conducted. The design and methods are suitable and the results adequately discussed. The implications of the study are reasonable and balanced. I would like to see a sentence or two in the discussion which proposes alternatives to the phrase ‘commit suicide’ as suggested by people with lived experience and clinicians/researchers. Overall, this paper is interesting and highlights an important issue in need of progression.

I have read this submission. I believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Competing Interests: No competing interests were disclosed.

Referee Report 01 February 2017

doi:10.21956/wellcomeopenres.11132.r19042

✔ **Katie Dhingra**
Department of Criminology, Leeds Beckett University, Leeds, UK

Through a careful and considered review of the previous literature, the authors offer a strong argument for limiting the use of negatively associated language (i.e., “committed”), and instead using language that accurately and sensitively describes experience, such as, ‘died by suicide’.

The study design as outlined in the Methods section is clear and concise, as is the Results section. The results encouragingly indicate that there has been a reduction in the use of the word “commit” in the three main suicide-specific journals but that there is still more work to do to ensure the stigma associated with suicide is not added to.

The authors indicate that they hope their study will act as a catalyst for discussion and further consideration of the words that we use, and the ways in which we say things. This is a worthy goal as a simple switch of one word to another could eradicate any connotations of criminality, shame or sin, thus destigmatising the deceased as well as those bereaved by suicide. The authors’ suggestion that editors and reviewers could play an important role in encouraging the use of more appropriate language is a good

one. I hope that this is something they have, or intend to pursue directly with the Editor-in-Chiefs of the journals that form the basis of this study (at a minimum).

A few minor points to consider:

1. "In academic literatures there is a precedent for demanding considered language…" – the word 'demanding' seems too strong in this context.

2. Aim 1 – seems a little redundant given Aim 2

3. "In 2015 one in eight articles still used this outdated, largely inaccurate and stigmatised phrase" – is it possible to consider this phrase truly outdated if we are still using measures that use the phrase?

I have no other comments to make that I believe would strengthen this paper.

I have read this submission. I believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Competing Interests: No competing interests were disclosed.