PREVALENCE OF CHILDHOOD MALTREATMENT AND VIOLENT BEHAVIOUR FOR YOUNG PEOPLE IN CUSTODY AND THE EFFECTIVENESS OF TRAUMA INFORMED TREATMENT IN REDUCING VIOLENCE.

by

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Abstract

This thesis explores the prevalence of childhood maltreatment in youth and its association with violent behaviour with a specific focus on youth in custodial settings. To investigate this, four methods were implemented.

Firstly, an empirical study investigated the experiences of childhood maltreatment in young offenders and its impact on violent behaviour. Secondly, a systematic review explored the effectiveness of trauma informed treatments in reducing violent behaviour displayed by youth in custodial settings. Thirdly, a critical evaluation of the Novaco Anger Scale and Provocation Inventory (NAS-PI; Novaco, 2003) evaluated the validity and reliability of the measure when applied to forensic populations. Finally, a case study investigated the effectiveness of Cognitive Behaviour Therapy (CBT) in reducing levels of anger and aggression in a young person with a history of childhood maltreatment and violent behaviour.

The results of the empirical study revealed that childhood maltreatment was associated with violent behaviour in custody in young offenders. Gender and ethnicity were also found to associate significantly with violent behaviour in custody. Those identified as Black, Asian and Minority Ethnicity were significantly more likely to have perpetrated acts of violence against staff members than those identified as white. A total of 86% of the studied population were reported to have experienced abuse and/or neglect. This skewed sample is argued to have contributed to the low specificity (45.2% and 52.7%) that was found when exploring predictive models of custodial violence.

The findings from the systematic review revealed a gap in the literature base in terms of high quality randomised controlled trials. Whilst all but one of the twenty studies included within the review indicated a range of psychological treatments were effective in reducing trauma symptomology evidenced by a large effect size (M =.89), only two studies were rated as high quality. The highest quality studies utilised CBT and Trauma Focused CBT (TF-CBT).

The critical evaluation of the NAS-PI revealed it to be a valid and reliable measure of anger and aggression when applied to forensic populations. Its utility in violence prediction was argued to have a number of implications for clinical practice and for future research including being able to identify those most at risk of engaging in aggressive behaviour in custodial settings. This would assist in identifying those most at risk of engaging in custodial violence and ensure interventions are targeted appropriately.

Finally, the case study revealed that a CBT intervention was effective in increasing anger regulation skills, however, the raw scores on all other NAS-PI subscales increased, indicating an increase in angry cognitions, arousal, and behaviour. The potential mechanisms behind the lack of evidentiary support for CBT as an effective intervention in reducing anger/aggression were explored. The Trauma Recovery Model and Polyvagal Theory were drawn upon to offer possible explanations for the lack of clinically significant change. The findings from this study have implications for future practice.

The concluding remarks within this thesis note that there is much work to be done to reduce levels of violence in youth custody settings, but trauma informed interventions are a promising way forward. Further research into the effectiveness of trauma informed interventions in reducing custodial violence is needed. It is only from such research that the beneficial implications can be assessed.

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Glossary of Terms

ABAS – Adaptive Behaviour Assessment Scale

ACE – Adverse Childhood Experience

ACT – Acceptance and Commitment Therapy

ADHD – Attention Deficit Hyperactivity Disorder

ART - Aggression Replacement Training

AUC – Area Under Curve

BAME – Black Asian and Minority Ethnicity

CBT – Cognitive Behaviour Therapy

CPT – Cognitive Processing Therapy

CYP – Children and Young People

DAS – Delinquent Activities Scale

DBT – Dialectical Behaviour Therapy

DBT-CM – Dialectical Behaviour Therapy – Corrections Modified

DTO – Detention Training Order

EHCP - Education Health Care Plan

EMDR – Eye Movement Desensitisation and Reprocessing

HCR-20 – History Clinical Risk

HPA - Hypothalamic-Pituitary-Adrenal

JJAM – Juvenile Justice Anger Management

MBCT – Mindfulness Based Cognitive Therapy

MDT - Mode Deactivation Therapy

MOJ - Ministry of Justice

MRT – Moral Reconation Therapy

MST – Multi-Systematic Therapy

MST-CAN – Multi-Systematic Therapy for Child Abuse and Neglect

NAS – Novaco Anger Scale

NAS-PI – Novaco Anger Scale and Provocation Inventory

NICE – National Institute of Clinical Excellence

PICO – Population, Intervention, Comparison and Outcomes

PMR – Progressive Muscle Relaxation

PRISMA- Preferred Reporting Items for Systematic Reviews and Meta-Analysis

PTSD – Post Traumatic Stress Disorder

RCT - Randomised Controlled Trial

RoB – Risk of Bias

SAVRY - Structured Assessment of Violence Risk in Youth

SCH – Secure Children's Home

SDQ - Strengths and Difficulties Questionnaire

SITCAP-ART - The Structured Sensory Intervention for Traumatised Children Adolescents and Parents – Adjudicated and at Risk Youth

STAXI – State Trait Anger Expression Inventory

STC – Secure Training Centre

TAU – Treatment As Usual

TF-CBT – Trauma Focused Cognitive Behaviour Therapy

UCLA PTSD RI - University of California at Los Angeles Post Traumatic Stress Disorder Reaction Index

WAIS - Wechsler Adult Intelligence Scale

WASI - Wechsler Abbreviated Scale of Intelligence

WHO - World Health Organisation

WISC - Wechsler Intelligence Scale for Children

YOI - Youth Offender Institution

YOU – Youthful Offender Unit

YP - Young Person

YSR – Youth Self-Report Scale

Chapter 1

Introduction to Thesis

Childhood maltreatment generates social and economic problems on a global scale. As defined by the World Health Organisation (WHO; World Health Organisation, 2014), child maltreatment is "the abuse and neglect of children under 18 years of age. It includes all types of physical and/or emotional maltreatment, sexual abuse, neglect, negligence and commercial or other exploitation, which results in actual or potential harm to the child's health, survival, development, or dignity in the context of relationship of responsibility, trust, or power".

In the WHO's most recent global status report on violence against children (WHO, 2020) they report on the global lifetime prevalence of child abuse and estimate that up to one billion children experience childhood maltreatment each year. It is estimated that one in three children globally experience emotional abuse including exposure to violence. A review conducted by Moody et al. (2018) revealed that rates of different types of abuse vary globally. Between 14-20% of females in Europe and North America were reported to have experienced sexual abuse. This was lower for males with a prevalence rate of 6% reported in Europe and 14% reported in North America. Physical abuse rates within Europe were reported to be 12%, this was much higher in African countries with a prevalence rate of 50.8% reported. It is estimated that in the USA alone economic costs of childhood maltreatment are $585 billion, (Peterson et al., 2015). However, although this data identifies that 'prevention pays', the current levels of spending for preventative and responsive actions remain low and the WHO (2020) emphasise the need for countries to scale up their preventative responses.

Within the UK alone, it is estimated that the average lifetime cost of childhood maltreatment is £89,390 per child (Conti et al., 2017). The study conducted by Conti et al. (2017) found that social care costs and costs from a lower probability of gaining employment were the largest contributors to this value. The authors note this to be a conservative estimate

given the limitations within the data they explored, such as a lack of longitudinal literature on this topic, being unable to quantify some costs such as days of work and also limited data on the costs to victims where crime against others is perpetrated. Despite this, the estimations of costs to services provides a useful comparison when evaluating the cost-benefit of interventions and prevention services (Conti et al., 2017).

One of the most widely researched consequences of child maltreatment is violent behaviour later in life (Braga et al., 2017). Violence as defined by the WHO (1996) is "the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community that results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation". There is a robust body of evidence that links child maltreatment with violent behaviour in later life (Adams, 2006; Adams et al., 2013; Braga et al., 2017; Edwards et al., 2003; Farrington et al., 2017; Fitton et al., 2018; Kokkalera et al., 2018; Norman et al., 2012; Maas et al., 2008; Manzoni and Schwarzenegger, 2019; Park et al., 2012; Smith & Thornberry, 1995; Steketee et al., 2019; Wilson et al., 2009). A comprehensive systematic review conducted by Malvaso et al. (2021) revealed that 87% of justice involved youth across 13 countries had experienced at least one traumatic event. Furthermore, they report that young people involved in the justice system were 12 times more likely to have reported at least one adverse child experience (ACE) compared to non-justice involved youth. Ford (2012) also reports that more than three quarters of youth involved in the justice system had been exposed to traumatic stressors, including abuse. Similar to findings from Dierkhising et al. (2013), Baglivo et al. (2014) found 90% of young offenders in Florida experienced two or more ACEs which includes childhood maltreatment. The cumulative effect of trauma has been recognised by Zettler et al. (2018) who note that the risk of incarceration of youth increases with every additional ACE that a child experiences. Due to the retrospective design of these studies, the results should be treated with caution. Whilst it appears that youth

within the justice system have experienced higher rates of adverse events including childhood maltreatment, not all maltreated children go on to commit offences.

This cautious approach should be taken when reviewing conclusions from studies that have drawn upon the cycle of violence theory (Widom, 1989). Pereznieto et al. (2014) for example comment on the intergenerational consequences of violence on children and draw attention to the cycle of violence, whereby those who experience violence as a child are more likely to go on to display violence as an adult. Although the cycle of violence theory (Widom, 1989) suggests that childhood maltreatment increases the risk of violent behaviour in the victims, with those who experience abuse and neglect being at an increased risk of becoming involved in life course persistent offending (Widom et al., 2018), a direct causal link is yet to be established. Whilst retrospective studies show a strong correlation between adult offending and the experience of child abuse (Chesney-Lind & Rodriguez, 1983; Dembo et al., 1991; Dutton & Hart, 1994; Harlow, 1999; Lake, 1995; McClellan et al., 1997; Weeks & Widom, 1998), prospective studies reveal that not all of victims of childhood maltreatment go on to engage in violent acts (Alfaro, 1981; Braga et al., 2017; Farrington et al., 2017; Fitton et al., 2018; Maxfield & Widom, 1994; McCord, 1983; Smith & Thornberry, 1995; Widom, 1989; Widom et al., 2015; Zingraff et al., 1993). It is therefore evident that an interplay of mediating factors contribute to this link.

Various developmental mechanisms have been proposed to explain the relationship between childhood maltreatment and violence.

Social Learning Perspectives. One approach is that violence is a learned behaviour that is acquired through observing others use violence (Bandura, 1972; Bandura, 1977; Huesmann, 1994; McCloskey & Lichter, 2003; Moretti et al., 2006). Social bonding and social control theories suggests that exposure to violent behaviour creates violence supportive attitudes in youth (Herrenkohl et al., 2003). In line with this social learning perspective, it has

been proposed that a neglected child, as a result of absent pro-social role models, fails to develop skills in emotion regulation and positive coping and therefore struggle to manage frustration and feelings of hostility (Agnew, 1999; Wolfe, 1999). Others suggest that trauma in childhood impacts on the ability to correctly label states of affect, leading the individual to mislabel emotions such as sadness and fear as anger (Garrion & Stolberg, 1983). Whilst this is aligned with the cycle of violence theory (Widom, 1989), this approach can be considered too simplistic when trying to understand the mechanisms that link childhood experiences to subsequent violent behaviour. The social learning approach has been disputed by prospective research that reveals that not all individuals who are exposed to violence go on to perpetrate acts of violence. A recent literature review of 29 studies reveals that four out of ten children show no enduring behavioural problems as a result of exposure to domestic violence (Radford et al., 2019). In their review, Radford et al. (2019) also draw attention to studies that report on the moderating effect of peer relationships as well as the quality of the relationship with the father, indicating that a relationship between observing violence and engaging in violent behaviour is not direct. It is likely that an interplay of factors contribute to this relationship. Radford et al. (2019) further highlight that severity, duration, timing and co-occurrence with other abuse influence the relationship between exposure to violence and later violent behaviour.

Neurodevelopmental approaches. Taking this a step further, neuro-developmental approaches have argued that traumatic events in childhood result in disrupted brain development contributing to neurological and cognitive impairments. These impaired neural networks impact on the child's ability to develop coping skills and appropriately read and interpret social cues. These deficits in social information processing can lead to hostile attribution bias and subsequently violent behaviour (Dodge et al., 1990; Dodge, et al., 1995; Heleniak & McLaughlin, 2020; Pollak et al., 2000). It has also been suggested that childhood trauma impacts on cortisol levels and contributes to Hypothalamic-Pituitary-Adrenal (HPA)

axis dysregulation (De Bellis & Zisk, 2014; Perry et al., 2018). Both of which have been linked to aggressive behaviour in children (Alink et al., 2012). This state of hyperarousal and associated hypervigilance may also contribute to an increased threat perception in adolescents who have experienced childhood abuse (Buffington et al., 2010).

Integrative Approaches. The complex nature of the relationship between child maltreatment including violence exposure and later engagement in violent behaviour highlights the need for integrative theories to present a more holistic framework when attempting to understand the mechanisms behind this relationship. Ford et al. (2006) contend that difficulties in the regulation of both social and emotional information facilitate the link between child abuse and problems with aggressive behaviour. The complex nature of childhood maltreatment is highlighted in research conducted by Hamilton et al. (2002). In this study with youth in a secure institution in the UK, the differential impact of repeat victimisation and revictimisation by perpetrators in and out of the family are explored. Youth who had experienced both repeat victimisation and revictimisation in and out of the family were more likely to have committed violent and/or sexual crimes than those with lower levels of revictimisation. The complexity and intricacies that need consideration when exploring the impact of childhood maltreatment on subsequent violent is also highlighted by Ford and colleagues. Ford et al. (2012) note the prevalence of poly-victimisation within young offending populations and the link between this and violence. Models have also been proposed to account for the complexities within the maltreatment to violence pathway. In an integrative approach Ford and colleagues proposed the Trauma Coping Model (Ford, 2002, 2006, 2008). This model combines biological and psychological perspectives to explain how trauma in childhood can contribute to emotion dysregulation and poor interpersonal skills that are observed in delinquent youth. Ford et al. (2006) propose that those who experience such trauma develop "survival coping" mechanisms,

displayed as defiance and aggression (calls for help) in attempt to gain a sense of control and defend themselves against a hostile world.

An additional comprehensive model that considers the role of biological and psychological factors on a child's development as well as the wider systems within the child's environment is the ecological systems theory (Bronfenbrenner, 1979). Bronfenbrenner's (1979) ecological systems theory provides a useful framework when considering the complex array of factors that influence outcomes for children who have been maltreated, including violence. This model proposes that a child's development is impacted by its ecology which consists of biological, interpersonal, social, and cultural factors. The model presents these factors within five levels, each level being a superset to the one that proceeds it. The innermost level or system, the microsystem, has the most immediate and powerful influence on the child's development. It includes the relationships within the family, school, and peer groups. It is argued that when childhood maltreatment is conceptualised within this model, the factors that influence the outcomes of maltreatment such as violence can be targeted with interventions. This model appears to appreciate the interplay of a complex network of factors that influence a child's propensity to engage in violent behaviour (Martinello, 2020; Sheng, 2020). It highlights the importance of services working directly with the families and schools of maltreated children in order to achieve the best results for the maltreated child (Sabri et al., 2013). Another important aspect of this model is its utility when considering the role of moderating/protective variables in the victim-perpetrator paradigm, i.e. why it is that some maltreated children go on to engage in violent behaviour as an adult and others do not (Barnes, 1997).

Preventative Approaches. In response to decades worth of evidence linking childhood maltreatment to violent behaviour and other adverse outcomes (Kerig & Becker, 2010), a range of preventative approaches have been developed to target identified risk factors. Commonly

these interventions include anger management, conflict resolution and social problem solving skills training. Preventative measures such as parental training and professional help for at risk families where parents are helped to develop a safe stable and nurturing relationship with their children has been identified by the WHO (2014) as the top strategy in decreasing the likelihood of individuals perpetrating violence. This is supported by a recent review conducted by Radford et al. (2019) that revealed an increase in popularity for whole family intervention approaches. Despite the positive efforts in developing prevention programmes, the scale of development and implementation does not match up to the scale of the problem of child abuse (WHO, 2014; WHO, 2020). These methods have shown to be most effective. However, for many, the consequences of childhood maltreatment are already far reaching. The WHO (2020) identify that through providing high quality care and support to victims of violence the symptoms of trauma can be reduced. Accordingly, they recommend prevention and support programmes that are evidenced based (WHO, 2020). Trauma informed systems of care within the justice system are an example of this (Branson et al., 2017; Griffin et al., 2012).

Within the UK a range of interventions have been developed to help treat both trauma and aggressive behaviour (Rhoden et al., 2019; Zettler, 2020). Many researchers have explored the effectiveness of these interventions on recidivism (Baglivo et al., 2014; Kowalski, 2019; Timmons-Mitchell et al., 2006). Community interventions such as Multisystemic Therapy (MST) have been found to be effective in reducing mental health symptoms (p <.05) and out of home placements (p <.05), in particular Multisystemic Therapy for Child Abuse and Neglect (MST-CAN) (Swenson et al., 2010). Although preliminary evidence is promising, MST-CAN is yet to be evaluated in regard to violence reduction and recidivism (Rhoden et al., 2019). Due to changes to the way in which crimes are managed, there has been a reduction in youth detained within custodial settings (Ministry of Justice, 2021), meaning that community based

interventions such as MST-CAN can have wider reaching effects. Further research will help to establish the effectiveness of MST-CAN on violent behaviour and recidivism.

Although lower numbers of young people are held in custody, (30% less in 2019 than in 2006; Ministry of Justice, 2020) numbers detained for more violent crimes have increased (Ministry of Justice, 2021). Consequentially, the levels of violence displayed within custodial settings has increased. There was a 19% increase in the use of restraint as a result of externalised aggressive behaviour between 2018 and 2019 (Ministry of Justice, 2021). To help reduce the economic burden that violence in custody creates, it is essential that the trauma histories of those within custodial settings are understood and that evidence based interventions, validated within custodial environments, are implemented. Systematic reviews are the most comprehensive method in which such interventions based on up to date evidence can be identified. It is only through the implementation of systematic reviews and empirical research that effective trauma treatments for reducing violent behaviour can be identified.

Thesis structure:

The aim of this thesis was to explore the impact of childhood maltreatment on violent behaviour in custodial settings in the UK. Within this, it aimed to explore potential treatments that are effective in reducing violent behaviour that is associated with childhood trauma. This thesis contains four main chapters which collectively attempt to address the overall aim of this thesis. These include an empirical study, a systematic review, a critique of a relevant psychometric assessment, and a case study.

Chapter 2 details an empirical piece of research that explored the experiences of childhood maltreatment in young offenders in a custodial establishment in the UK. It further explored the impact of maltreatment on violent behaviour in custody. Although a wealth of research has explored the link between childhood maltreatment and violent behaviour, none had specifically explored the impact on violent behaviour in custody. The findings from this

research have implications for practice including ways to improve treatment outcomes for young people within the justice system. The findings also add to the literature pool and highlights the need for future research particularly with those from ethnic minority groups.

Chapter 3 is a systematic review that was conducted to explore the effectiveness of trauma informed interventions in reducing aggressive and violent behaviour in young offenders, specifically those within custodial settings. Despite there being a range of systematic reviews that have explored the impact of trauma interventions on violence in relation to recidivism, none had specifically focused on violence perpetrated in custody. The systematic review within this thesis aimed to do so. Furthermore, this systematic review draws attention to the methodological issues within the current evidence base and highlights the need for further research within this area, especially within the UK.

Chapter 4 provides a critique of the Novaco Anger Scale and Provocation Inventory (NAS-PI; Novaco, 2003). This psychometric assessment is designed to assess anger and its associated constructs. The NAS-PI was included in the systematic review detailed in Chapter 3 and was also used as an outcome assessment tool in Chapter 5, the case study. The critique explored the assessment in terms of reliability and validity when applied to forensic populations.

Chapter 5 details a case study of a young offender within a custodial setting in the UK. The case study aimed to assess the effectiveness of a cognitive based group therapy in improving emotional management skills. Within this case study, the assessment, formulation, treatment, and evaluation of outcomes are documented. The case study highlights the importance of considering the impact of childhood maltreatment on treatment interfering behaviours including peer influence when engaging with young offenders.

In the final chapter, Chapter 6, a conclusion of the thesis is provided. Within this the key findings are discussed in relation to each aim identified within the chapters: 1) to explore

the reported experiences of childhood maltreatment of youth within a custodial facility in the UK and the association with violent behaviour in custody; 2) to evaluate the effectiveness of trauma informed interventions in reducing levels of violence that young people display in custodial settings; 3) to explore the psychometric properties of the NAS-PI and assess the validity and reliability of the measure when applied in forensic settings; 4) to evaluate the effectiveness of a cognitive based group programme on improving emotion regulation skills in a young offender detained in a custodial establishment. The findings of each chapter collectively address the overall aims of the thesis; to explore the impact of childhood maltreatment on violent behaviour in custodial settings in the UK and to explore potential treatments that are effective in reducing violent behaviour that is associated with childhood trauma. The findings of this thesis have implications for clinical practice. These and recommendations for future research are discussed.

Chapter 2

The experience of childhood maltreatment in young offenders: its impact on violent behaviour, before, during and after a stay in custody.

Abstract

Aim: This study aimed to explore the role of maltreatment in violent offending (having a conviction for a violent offence), violent behaviour in custody (assaults perpetrated on staff and other young people) and violent recidivism (being convicted for another violent offence). **Method**: Data in the form of reported experience of childhood maltreatment from 287 young people (230 male and 57 female) who resided within a youth custody facility in the UK was used to explore this. It was hypothesised that young people who had experienced multiple types of childhood maltreatment would demonstrate higher rates of violent behaviour at each time point (before, during and post-release from custody) compared to those who had experienced fewer or no types of childhood maltreatment. Due to low sample sizes, it was not possible to differentiate between maltreatment types. The reported experience of any abuse or neglect was used as a dichotomous variable. **Results**: Regression analysis revealed risk factors associated with violence at each time point. The experience of any abuse and neglect was associated with violence at each of the three time points (before, during and post-release from custody). A total of 86% of the sample had experienced abuse and/or neglect. Other risk factors associated with violence included gender. Gender differences were found in relation to knife crime, violence towards other young people in custody and violence directed towards oneself. Ethnicity was associated with knife crime, and violence towards staff in custody. The identified risk factors were utilised to explore a model predictive of violence in custody towards staff and towards young people. Although both models yielded high levels of positive predictive accuracy for identifying those young people most at risk of perpetrating violence to others (either staff or young people in custody), model specificity was low. **Conclusion**: The results and the

limitations of the study are discussed, with recommendations made in relation to further avenues of research to improve practise within the youth justice system.

Keywords: youth custody; maltreatment, abuse, ethnicity, violence, interventions.

Introduction

In the past 10 years, violent offending by Children and Young People (CYP) in England and Wales has increased by 11% (Ministry of Justice/ Youth Justice Board, 2021). There has been a 36% increase in the past five years of CYP in the Youth Secure Estate (Youth Offender Institutions, Secure Training Centres and Secure Children's Homes) for more serious offences such as violence against the person (including homicide, violence with serious injury and violence without serious injury), robbery, and possession of weapons, with a total of 70% of CYP in the Youth Secure Estate having a violent conviction (Ministry of Justice/Youth Justice Board, 2021). It is also reported that reoffending rates have increased with overall reoffending rates at 38.5% in this age group. Although the total percentage of young offenders in custody has remained relatively stable over the past 10 years (6%), it is evident that the offending behaviour has changed. Changes have also been identified in violent behaviour in custody with a noted 19% increase in physical restraints between 2019 and 2020 (Ministry of Justice/ Youth Justice Board, 2021). Given this increase of violence amongst youth, it is essential that causal risk factors are explored, and early intervention offered to minimise the consequential display of violent behaviour.

One risk factor for violent behaviour that has been extensively explored is child maltreatment (Alfaro, 1981; Cicchetti & Toth, 1995; Farrington, 2003; Fitton, Yu & Fazel, 2020; Malvaso et al., 2016; Smith et al., 2005; Widom, 1989; Widom & Osborn, 2021; Widom et al., 2018).Child maltreatment is composed of four types of abuse: physical, emotional, sexual and neglect (both physical and emotional neglect), all of which have the potential to cause harm to a child's development, health and/or survival (Butchart et al., 2006). The Office of National

Statistics (2020) report that one in five individuals, approximately 8.5 million, in England and Wales experience at least one form of child abuse in their lifetime, with 44% reporting more than one type of abuse. They estimate that one in 100 experience physical neglect (not being taken care of or not having food shelter or clothing) and 3.1 million individuals had been a victim of childhood sexual abuse. It was reported that 9.7% of the population had witness domestic violence. The experience of physical abuse from a parent and witnessing domestic violence has been associated with increased levels of delinquent behaviour as well as poor emotional wellbeing in the victims (Radford et al., 2011; Ruddle et al., 2017). This finding is supported by research conducted with young men serving custodial sentences for violent crime (Welfare & Hollin, 2015). The prevalence of maltreatment histories within the criminal justice system is notably more concentrated than within the general population. It is estimated that 87% of CYP in custody have a history of experiencing childhood maltreatment (Malvaso et al., 2021). A systematic review conducted by Bodkin et al. (2019) explored maltreatment rates in 1429 prison records. The findings revealed that 51.5% of the explored prison population in Canada have experienced emotional abuse, 57.7% had experienced physical abuse and 51.5% had experienced neglect. Sexual abuse was reported by 21.9% of males, and by 50.4% of females. Similar prevalence rates have been reported in the UK (Ford et al., 2019). In a sample of 468 adult male offenders, 41% reported they have experienced physical abuse as a child, 18% had experienced sexual abuse, 50% had been verbally abused and 31% reported to have experienced neglect (19% emotional neglect and 12% physical neglect) (Ford et al., 2019). Other studies have reported maltreatment prevalence within prisons to be as high as 68% (Angelakis et al., 2020).

These findings highlight the variations in the prevalence of different types of maltreatment experienced by children that go on to engage in offending behaviour. The importance of not treating maltreatment as a dichotomous variable has been stressed by

researchers, as doing so means the varying effects of each type of maltreatment is undetected (Malvaso et al., 2018). Malvaso et al. (2018) reported on the varying types of maltreatment experienced by 1819 young people within the South Australian Youth Justice System. They identified that those who had experienced neglect (physical, emotional, educational, and supervisory neglect) were 3.4 times more likely to engage in violent offending. Similarly, physical abuse was also associated with increased rates of violent convictions. Large scale studies conducted in the USA reported similar findings. In a study of 13,613 data sets of young offenders, van der Put and de Ruiter (2016) reported that neglect (physical, emotional, and supervisory neglect and reckless endangerment), and physical abuse were significantly related to violent recidivism in males (p <.05 and p <.01 respectively). These factors were only weakly associated with general recidivism in females (p <.05). There was no association between neglect and physical abuse and violent reoffending in females. Sexual abuse was not related to violent recidivism in either males or females. Explanations offered for the gender differences focus on females internalising symptoms of trauma whereas males tend to externalise symptoms (Topizes et al., 2011). Widom and Osborn., (2021) discuss this further and draw upon literature that explores the gender differences in the internalisation and externalisation of emotions. They further discuss the simplicity of this dichotomy and suggest that it may oversimplify the way in which women respond to emotional distress. Prospective research has identified specific pathways from maltreatment to violence in males and females and noted that alcohol acts as a mediating variable for female violence, whereas the pathways from maltreatment to violence for males were both direct and indirect (mediated through alcohol) (Widom et al., 2006). However, maltreatment was not divided into subtypes within this study. Therefore, it is not possible to speculate which type of maltreatment was more strongly associated with violent offending in each gender. Furthermore, the presence of protective or moderating factors for the effects of maltreatment on violence were not explored. Despite this,

additional research support shows that exposure to multiple types of maltreatment and exposure to additional ACEs such as substance abuse and parental criminality, are more strongly related to violent offending in youth, compared to single maltreatment, emphasising the impact of cumulative trauma on violent behaviour (Baglivio & Ebbs, 2015; Hurren et al., 2017).

Models of offending behaviour can aid the explanation of the link between child maltreatment and violent offending in youth. The cycle of violence theory (Widom, 1989) explains the maltreatment to violence cycle from a social learning perspective (Bandura, 1973). This theory proposes that violent offending is learned through modelling of aggressive behaviour in adult care givers (Widom, 1989). Whilst there is a large volume of research that supports the intergenerational cycle of violence theory (Gilbert et al., 2009; Smith et al., 2005; Widom et al., 2015), it has been argued that very few prospective studies of high methodological rigour have been conducted (Thornberry et al., 2012). Thornberry et al. (2012) argue that whilst most studies support the cycle of maltreatment hypothesis, many have focused on abusive parents and not on the factors that have contributed to successful parenting. They have often focused on physical abuse instead of exploring the varying impacts of different maltreatment types. The reviewed studies also rely heavily upon retrospective data from unrepresentative samples and have conducted follow ups in a relatively short period. Since this critique was published, Widom and Massey (2015) have published findings from a longitudinal prospective examination on the intergenerational consequences of childhood sexual abuse. A total of 908 abuse/neglect cases were compared to 667 controls. The findings do not support the idea that being a victim of childhood sexual abuse increases the risk of becoming a sexual offender. It is noteworthy that all sexual offences were combined in this study. The complexity of sexual offending may have meant treating all sexual offenders as a homogenous group impacted on the outcomes. Perhaps investigating offences against children alone would have yielded a different outcome. Interestingly, they did find that physically abused and neglected

children were at an increased risk of engaging in sexual offending. Consequentially, Widom and Massey (2015) argue that early intervention programmes should target children with histories of physical abuse and neglect. It therefore appears that the experience of specific abuse types does not map directly onto offence type, suggesting that social learning perspectives relating to observation and imitation are too simplistic to alone explain the maltreatment to violence pathway.

An alternative and more integrative approach comes from developmental explanations of offending behaviour. One approach is Farrington's Integrated Cognitive Antisocial Potential Theory (2005). This theory sought to consolidate various developmental life course theories (Lahey & Waldman, 2005; Moffitt, 1993; Thornberry & Krohn, 2005) and proposed that a multitude of risk factors interplay and integrate to increase an individual's antisocial potential (risk for engaging in antisocial behaviour). Key risks include low income, criminal behaviour in others who form antisocial models (parents, peers, school, and neighbourhood), and poor child rearing which impact on quality of attachment (harsh or inconsistent discipline, cold attitude, neglect, and physical abuse). These factors along with life events and impulsivity increase one's anti-social potential. When opportunities and victims are added along with social factors such as boredom, male peers, alcohol, and negative emotions with limited skills in emotion regulation, one's ability to cognitively process a situation is impaired. This can result in criminal and violent behaviour and this behaviour can be reinforced or punished depending on the consequences of the antisocial act. The poor child rearing practises and exposure to antisocial behaviour (in the form of domestic violence) can explain violent behaviour in young people who have experienced maltreatment. The notion that multiple risk factors are needed to increase one's antisocial potential helps to explain why only a small amount of young people who experience maltreatment go on to engage in violent behaviour (Wilson et al., 2009).

Some researchers have focused specifically on the role that the age when maltreatment

occurs plays on subsequent violent offending. Ireland et al. (2002) proposed that maltreatment that occurs earlier in life impacts on offending behaviour due to the disruption of developmental milestones. They note that attachment and self-regulation are compromised as a result. Disruptions with the development of attachments and emotion regulation have been evidenced to lead to poorer social interactions in later life and increased aggression (Cicchetti & Toth, 2016). However, some life course perspectives on offending offer a different approach, in that maltreatment that occurs later in childhood and into adolescence has a more critical impact on violent offending in youth (Sampson & Laub, 1993; Smith et al., 2005). Taking this a step further, Ford et al. (2012) provided a conceptualised explanation of offending behaviour with a focus on the impact of maltreatment. They proposed that the traumatic effects of exposure of any type of maltreatment would impact on one's ability to learn in school, impact on peer relationships and that cognitive milestones may also be delayed developmentally. Each of these in turn would impact on one's ability to regulate their emotions, a deficit commonly seen in reactive violent offenders (Ford et al., 2012).

Whilst each individual theory/model has its merits in offering explanations for the maltreatment to violence pathway, it is more probable that the more integrated approaches such as Farrington's Integrated Cognitive Antisocial Potential Theory (2005) offer the more comprehensive explanation by amalgamating all potential risk/vulnerability factors into one conceptual model. These theories each provide a broad explanation of the link between maltreatment and violent offending, but do not explore the developmental trajectories of individual or combined maltreatment types. To date, no research has explored the link between maltreatment types and patterns of violent behaviour at different time points. This is a critical area for future exploration, especially given that trauma related behaviours have been shown to interfere with rehabilitation efforts and impact further on reoffending rates (Ardino, 2012). This study aimed to explore this further and examine how different forms and combinations of

childhood maltreatment impact on patterns of violent offending behaviour, violent behaviour in custody, and subsequent re-offending in CYP in custody within the UK.

Aims of the Study

This study aimed to explore the reported experience of childhood maltreatment in young people who resided within a youth custody facility in the UK. It aimed to explore the association between maltreatment types and violent behaviour in the community (offending), violent behaviour in custody (assaults on others) and subsequent engagement in violent reoffending post custody (recidivism).

Hypotheses

It was hypothesised that:

(1) Those young people who had experienced multiple types of childhood maltreatment would demonstrate higher rates of (a) violent offending, (b) violent behaviour in custody and (c) violent reoffending rates, compared to those who had experienced one or no types of childhood maltreatment.

(2) Females who have experienced emotional and/or sexual abuse would demonstrate higher rates of (a) violent offending, (b) violent behaviour in custody and (c) violent reoffending rates, than males.

(3) Males who have experienced neglect (physical and/or emotional) and/or physical abuse would demonstrate higher rates of (a) violent offending, (b) violent behaviour in custody and (c) violent reoffending rates, than females.

(4)Young people who have experienced multiple types of childhood maltreatment would have higher levels of self-reported difficulties with (a) conduct, (b) emotions, (c) peer problems, as measured on the Strengths and difficulties Questionnaire (SDQ; Goodman, 1997)

(5) Young people who have high levels of self-reported difficulties as measured by the SDQ would demonstrate higher rates of (a) violent offending, (b) violent behaviour in custody

and (c) violent reoffending rates.

Method

Population

A total of 287 datasets from young people (230 male and 57 female) who had received a custodial sentence within a secure establishment in the UK between July 2016 and December 2018 were used within this study. Age ranges for the young people were between 13 and 18 (*M*=15.56). There were 204 young people identified as white and 83 were BAME. Due to low sample levels, ethnicities were grouped into these two categories as opposed to individual ethnic groups.

Design

This study implemented a retrospective cohort design. An anonymised dataset containing information relating to all sentenced young people was used for this study. The information used within this dataset is taken from both self-report data and official case file data. For the purposes of this study, only the details described within the measures section were used within the analysis.

Ethical Considerations

Ethical approval for this study was gained from the University of Nottingham, Faculty of Medicine, and Health Sciences Research Ethics Committee (ethics reference number: 257-1902). The director of the establishment where the data was held also provided written approval for this research to take place after seeking additional guidance from the Youth Custody Service Research Group. The study used retrospective data and therefore no direct client contact was made. The occurrence of an adverse event within this study was not expected and no adverse event data was collected. The anonymised dataset was maintained on a secure computer within the establishment. This computer had a unique password for access. The General Data Protection Regulations were followed in the production of the dataset with all

identifiers removed. Each individual had a unique identity code. The dataset, as well as a backup, was kept secure by the data guardian within the establishment where the research was conducted. Any results that identify clear needs within the population studied were shared with the establishment to inform best practice. Any suggestions for how to meet the needs of the population were also communicated.

Measures

Case details. Demographic information about each young person was used in this study. Details of the age at which they entered custody, gender, ethnicity, and detention status (sentence type and length of sentence) were included from case file information. Those who were remanded to custody at the time of the data extraction were excluded from analysis. The rationale for this is that they were not convicted of a violent offence at that time.

Childhood Maltreatment. Details of recorded histories of childhood maltreatment were used for analysis in this study. This data was taken from case file information for each young person. For this study, experiences of any of the four types of abuse were recorded for each young person: physical, emotional (including exposure to domestic violence), sexual abuse and neglect (physical and/or emotional neglect). This item was dichotomised as present or absent for each type of abuse. If any abuse or neglect was not mentioned in the case history it was deemed to be absent. The limitations of this approach are discussed later within this report.

Pre-custody violence. Details of the current/index offence were used in this study. This information was extracted from case file information. Offences were recorded as either violent or non-violent and further into subcategories of the type of offence committed. As this study focused on patterns of violent behaviour, those with non-violent, sexual or terror related offences were not included in the analysis.

Violence in custody. Violent behaviour in custody was measured by whether a

young person had committed acts of violence to other young people or to staff. Whether a young person had engaged in self-harming behaviours in custody was also measured. Incident data recorded within the establishment was utilised to obtain this data. This data was dichotomised (yes/no). From the incident information, data pertaining to the victim of the assault was also extracted and explored within the analysis.

Violent reoffending. Data regarding violent behaviour post custody was initially extracted from resettlement data within the establishment. This data only includes information for those young people who have been sentenced to custody and therefore does not include data for those who were on remand. Information about those young people who had transferred to an alternative establishment during their sentence was also not included. The information included detailed whether the young person has reoffended (dichotomised as present or absent), if so, the offence type (coded as violent or nonviolent) or if the young person has breached their licence conditions (coded as present or absent). Data at four month, eight month and 12-month intervals were used. During the analysis, it was revealed that the sample size, following the exclusions, was too small for analysis. As a result, details from case file information regarding the presence of previous violent offences were used as a measure of violent re-offending (coded as present/absent).

Strengths and Difficulties Questionnaire. The SDQ (α: .73: Goodman, 1997) is a brief self-report screening questionnaire developed for 11–17-year-olds (Goodman, 1997). A total of 25 questions are split between five scales. Five questions per scale measure Emotional Symptoms, Conduct Problems, Peer Problems, Inattention/Hyperactivity and Prosocial Behaviour. All, except prosocial behaviour, are summed to create a Total Difficulties score (Goodman et al., 1997). Young people who entered the establishment were invited to complete this questionnaire as part of the admission process. For this study, the scores for each young person from each scale were used. This was dichotomised for analysis. Scores in the high or

very high range were rated as present and those below this range were recorded as absent. An exploration took place of the association between self-reported difficulties in each domain and both childhood maltreatment and violent behaviour at each of the three time points. A total of 14 young people in the dataset declined to complete this questionnaire upon admission. Therefore, they were excluded from the analysis when the SDQ scores were explored.

Data Analysis

The analysis of data took place in two stages using SPSS software. All 287 anonymised datasets were used within the first stage of the analysis. The first stage aimed to explore the association between the independent variable; childhood maltreatment type (physical, emotional, sexual abuse and neglect), both individually (e.g. those who only have recorded experiences of physical abuse/those who only have recorded experiences of sexual abuse etc) and combined (e.g. those who experienced both physical and emotional abuse/those who experienced physical, sexual and emotional abuse), with the dependant variables (pre-custody violence, in custody violence (towards staff and young people), and violent re-offending). However, due to limited sample sizing when childhood maltreatment types were broken down further, childhood maltreatment was grouped as a single variable. This boosted sample sizing of this variable. Whether a child was reported to have experienced any of the forms of maltreatment (physical, emotional, and sexual abuse and/or neglect) in any combination was coded 'Any Abuse and/or Neglect'. This variable was dichotomised as present/absent. Within this, gender, and ethnicity differences in abuse experiences and violent behaviour were explored. Furthermore, the association between SDQ scores and violent behaviour in custody was also analysed. The limited sample sizing of the data suggested that the data was unlikely to show normal distribution, therefore two-tailed statistics were applied to the data using non-parametric testing (chi squared analysis via cross tabulation using SPSS software). As multiple tests were conducted on the dataset, a Bonferroni correction was carried out and a 99.9%

confidence limit was set (p <.001, two tailed). All variables were dichotomised to allow for binary logistic regression analysis.

The second aspect of the analysis aimed to explore a model of prediction. Binary logistic regression was utilised. For this study, the model aimed to predict violence within custody. One binary logistic regression model was used to explore the strength of the association between predictor variables and violence displayed towards staff, and another used to explore the strength of the association between predictor variables and violence displayed towards other young people in custody. Those variables that reached the specified level of significance (p <.001, two tailed) in the first part of the analysis when exploring their association with the violence in custody variables, were selected and used as predictor variables within a binary logistic regression. All variables used were dichotomised as 'yes/no'. The outcome or dependant variable (violence towards staff or violence towards other young people), dichotomised as Yes (1) or No (0), was predicted using a combination of independent (predictor) variables. The enter method was utilised with all predictor variables added simultaneously into the model. Highly correlated predictor variables were excluded to reduce the overall number of predictors within the model. Once removed, the binary logistic regression was run again. A total of five predictor variables were identified for the model of prediction for violence to other young people in custody, and four predictor variables were identified for the model of prediction for violence towards staff. These remaining predictor variables formed a checklist that can be utilised to identify the risk/likelihood that individual young people who enter the custodial establishment would be either violent to other young people or to staff during their time there. The number of risk factors present for each young person was summed and a cut off value identified for each checklist. Those identified as presenting with a high risk of perpetrating violence to staff or other young people contain a high level of risk factors present (predictor variables) whereas those identified as low risk, have a lower number of risk

or predictor factors present.

Development of Screening Tool

The below calculations (Table 2.1.) can be used to identify the likelihood of young people engaging in violence towards other young people or staff. This is achieved by comparing the actual observed outcome number (the number of young people who were violent to staff or other young people) to the predicted outcome number in the same population.

Table 2.1

Contingency classification table for predictive studies (adapted from Leventhal, 1988) *

Observed Incidences	**Predicted Incidences**		
	Violent to staff or young people (High Risk)	Not violent to staff or other young people (Low Risk)	Actual Total Observed
Violent to staff or young people	(a)	(c)	(a + c)
Not violent to staff or other young people	(b)	(d)	(b + d)
Predicted total	(a + b)	(c + d)	Total *N*

***see text for explanation of table.*

Table 2.1 shows how the checklist performance characteristics can be calculated i.e. how accurate the checklist is at predicting the outcome variable (violence to staff or other young people). The performance of the developed screening tool can be summarised by calculating the following (Leventhal, 1988):

- Incidence of being violent to staff or other young people = (a + c)/*N*.
- High risk for being violent to staff or other young people = (a + b)/*N*.
- Positive predictive accuracy of 4 or 5 factor model = a/ (a + b).
- Negative predictive accuracy of 4 or 5 Factor model = d/ (c + d).

- Risk Ratio (RR) (probability that a young person will be violent to staff or other young people if they meet the specified number of checklist items) = a/ (a + b) / c/ (c + d).
- Sensitivity of the checklist = a/ (a + c).
- Specificity of the checklist = d/ (b + d).

All data collated was analysed using the Statistical Package for the Social Sciences (SPSS) Version 26.0.

Results

Results: Univariate Analysis

Case Characteristics. Table 1.2 highlights key case characteristics of this sample. In regard to ethnicity, the majority were identified as white (71.1%). The majority (80.1%) were male. This is due to the larger placement availability for males within the establishment from which this data was obtained. The mean age of the cases was 15.56. All of the cases were sentenced for committing a violent offence. Of these, 75.6% had a previous violent offence. Within the establishment, 78.4% had perpetrated an act of violence against other young people, males significantly more so than females (p <.001) and 59.9% had perpetrated acts of violence towards staff. Females were significantly more likely to have engaged in acts of self-harm in custody than males (p <.001). A large percentage of the cases had experienced abuse and/or neglect as a child (85.7%).

Table 2.2

Chi-square analyses of case characteristics (N = 287).

	%	**Male (*n* = 230)**	**Female (*n* = 57)**	χ^2	***p***
Ethnicity - White	71.1	157	47	4.478	.034

Violence in custody towards staff	59.9	137	35	.064	.800
Violence in custody towards other young people	78.4	191	34	15.762	.000
Previous violent offence	75.6	173	44	.097	.756
Self-harm in custody	19.5	31	25	26.847	.000
Experience of any abuse and/or neglect	85.7	193	53	3.068	.080

Results: Bivariate Analysis

Demographics and Childhood Maltreatment. Gender differences were explored with each abuse type and abuse type combinations (see Table 2.3). Gender differences were only found in those individuals who had only sexual abuse recorded in their files (Fisher's exact test, p <.001). The number of these individuals was very low (n = 4/57 females, n = 0/230 males) and therefore it was not possible to explore the association between this as a standalone variable with other variables. Females were significantly more likely to have been subjected to all four types of abuse: sexual, physical, and emotional abuse, and neglect (Fisher's exact test, p <.001) than males (n = 20/57 females, *4*/230 males). However, it is not possible to tease apart the relative contribution of each abuse type to the explored variables, given the small sample sizes within each. Consequentially, it was not possible to explore the two gender specific hypotheses (2a, 2b, 2c, 3a, 3b and 3c) using this data. Abuse types for both genders were combined to provide an overall variable as 'Any abuse and/or neglect' and this was used for the second stage of analysis. As shown in Table 2.2, 85.7% of this population were reported to have experienced any abuse and/or neglect. This prevalence rate is four times higher than the national prevalence which reports one in five individuals to have experienced at least one type of maltreatment (Office of National Statistics, 2020).

Table 2.3

Chi-square analyses of gender differences between abuse types (N = 287).

Abuse type	**Male**		**Female**		**Total (*N*)**	χ^2	***p***
	***n*/230**	**%**	***n*/57**	**%**			
Emotional Only	21	9.1	1	1.8	22	3.511	.061
Neglect Only	39	16.9	7	3.0	46	.742	.389
Physical Only	4	1.7	1	1.8	5	.000	1.00 (Fisher's exact)
Sexual Only	0	0	4	7.0	4	16.368	.001 (Fisher's exact)
Emotion and Neglect	39	16.9	14	24.5	53	1.755	.185
Emotion and Physical	24	10.4	4	7.0	28	.606	.436
Emotional and Sexual	0	0	0	0	0	0	0
Emotional, Physical and Sexual	0	0	0	0	0	0	0
Emotion, Neglect and Physical	36	15.7	5	8.7	41	1.766	.184
Emotional, Sexual and Neglect	6	2.6	1	1.7	7	.140	.708
Emotional, Neglect, Physical and Sexual	4	1.7	20	35.1	24	66.294	.000 (Fisher's exact)

Physical and Sexual	0	0	0	0	0	0	0
Physical and Neglect	7	3.0	1	1.7	8	.280	.597
Physical, Sexual and Neglect	0	0	0	0	0	0	0
Neglect and Sexual	2	0.9	3	5.3	5	5.151	.055(Fisher's exact)
Any Abuse No Neglect	60	26.1	12	21.1	72	.616	.433
Any abuse and Neglect	193	83.9	53	92.9	246	3.068	.080
Parental Criminality	30	13.0	3	5.3	32	1.588	.208
Parental Substance Misuse	32	13.9	10	17.5	42	.482	.488

Table 2.4 provides an overview of the ethnicity differences found in the abuse experience data. Regarding ethnicity differences in childhood maltreatment, those young people identified as BAME were more likely than young people of white ethnicity to have experienced neglect only (BAME=20/83, white=26/204). This is only reported as a trend as it did not reach significance (χ^2 (1, 287) = 5.648, p = .017). As no other ethnicity differences were identified regarding childhood maltreatment types, ethnicities were not analysed separately. Other ethnicity differences were identified for parental criminality. Young people identified as BAME were significantly more likely to have a parent who had a criminal conviction than those identified as white (χ^2 (1, 287) = 10.87, p <.001) (BAME = 18/83, white = 16/204). On the other hand, those identified as white were more likely to have a parent with a substance misuse problem than BAME young people (white = 38/204, BAME = 4/83). This is also identified as a trend as significance was not reached (χ^2 (1, 287) = 9.00, p = .003). No other associations between ethnicity and abuse variables were found.

Table 2.4

Chi-square analyses of ethnicity differences between abuse types (N = 287).

Abuse type	**White**		**BAME**		**Total (*N*)**	χ^2	***p***
	***n*/203**	**%**	***n*/83**	**%**			
Emotional Only	17	8.4	5	6.0	22	.444	.505
Neglect Only	26	12.8	20	24.1	46	5.646	.017
Physical Only	4	1.9	1	1.2	5	.197	1.00 (Fisher's exact)
Sexual Only	0	0	4	4.8	4	1.650	.327 (Fisher's exact)
Emotion and Neglect	44	21.7	9	10.8	53	4.507	.034
Emotion and Physical	20	9.6	8	9.6	28	.002	.966
Emotional and Sexual	0	0	0	0	0	0	0
Emotional, Physical and Sexual	0	0	0	0	0	0	0
Emotion, Neglect and Physical	31	15.3	10	12.0	41	.477	.490
Emotional, Sexual and Neglect	5	2.4	2	2.4	7	.000	1.000(Fisher's exact)
Emotional, Neglect, Physical and Sexual	22	10.1	2	2.4	24	5.400	.020

Physical and Sexual	0	0	0	0	0	0	0
Physical and Neglect	5	2.4	3	3.6	8	.295	.587
Physical, Sexual and Neglect	0	0	0	0	0	0	0
Neglect and Sexual	5	2.4	0	0	5	2.070	.326 (Fisher's exact)
Any Abuse No Neglect	51	25.1	21	25.3	72	.003	.957
Any abuse and Neglect	180	53.2	66	79.5	246	3.661	.056
Parental Criminality	16	7.9	18	21.6	34	10.827	.001
Parental Substance Misuse	38	18.7	4	4.8	42	0.004	.003

Childhood Maltreatment and Violence (before, during and after custody). A chi square analysis was conducted to explore the association between childhood maltreatment type and the type of offences young people committed. There were thirteen different violent offence types reported for this population. In line with the Ministry of Justice (2021) categorisation of violent offences, these include murder, attempted murder, manslaughter, wounding with intent, grievous bodily harm with intent, actual bodily harm, assault by beating, common assault, assault on a constable, violent disorder, robbery, knife possession and firearm possession. Whilst some young people were sentenced for one offence others were sentenced for multiple offences such as robbery whilst in possession of a bladed article. There were no significant associations between childhood maltreatment types and the types of offences the young people had been sentenced for. Furthermore, there were no significant associations between any abuse and/or neglect with any of the offence types. Potentially, this was due to sample sizes for each maltreatment type being small. Sample sizes for each offence type, except from knife possession and robbery were also small (murder, n = 11; attempted murder, n = 3; manslaughter, n = 6; wounding with intent, n = 28; grievous bodily harm with intent, n = 11; actual bodily harm, n = 16; assault by beating, n = 37; common assault, n = 26; assault on a constable, n = 8; violent disorder, n = 1; robbery, n = 115; knife possession, n = 153 and firearm possession, n = 18.

In relation to the first hypothesis (those young people who had experienced any type of childhood maltreatment would demonstrate higher rates of (a) violent offending, (b) violent behaviour in custody and (c) violent reoffending rates, compared to those who had experienced fewer or no types of childhood maltreatment), significant associations were observed for previous offending behaviour and violence in custody when childhood maltreatment types were combined. Those identified as experiencing any form of abuse or neglect were significantly more likely to have been involved in any offending behaviour before coming to custody for

their index offence than those who had not experienced such abuse (χ^2 (1, 287) = 23.90, *p* <.001). Overall, for 246 young people who had been abused and/or neglected in childhood, 221 had previous convictions of any kind. For those 41 young people who had no record of maltreatment, 25 had previous convictions. Furthermore, those who had experienced any type of abuse and/or neglect were more likely to have committed a previous offence of a violent nature (χ^2 (1, 287) = 9.87, *p* = .002) (Previous violent offence = 194/217, No previous violent offence = 52/70).

Table 2.5

Cross tabs analysis data exploring the difference in violence in custody outcomes with the experience of any abuse and/or neglect (N = 287).

In custody violence type	**Experience of Any Abuse and/or Neglect (*n* = 246)**		**No Experience of Any Abuse and/or Neglect (*n* = 41)**		**Total *N***	**χ^2**	***p***
	n	**%**	***n***	**%**			
Self-harm only	2	0.4	0	0	2	.167	1.000
Violent towards others only	21	8.5	2	4.9	23	.638	.424
Victim only	8	3.3	2	4.9	10	.276	.599
Victim and violent towards others	138	56.1	24	58.5	162	.085	.771
Self-harm and victim	0	0	0	0	0	0	0
Self-harm and violent towards others	9	3.66	1	2.4	10	.155	.693
Self-harm, victim and violent towards others	45	18.3	0	0	45	8.895	.003
Violent to	200	81.3	25	60.9	225	8.572	.003

young people							
Violent to staff	153	62.6	18	43.9	172	5.117	.024

Table 2.5 shows the association between violence in custody types and the experience of any abuse and/or neglect. Notable findings include that 100% of young people involved in all three types of violent behaviour in custody (self-harm, been victimised and been violent towards others) had experienced some form of abuse and/or neglect. When looking at violent behaviour in custody further, those that had experienced any form of abuse and/or neglect were more likely to be violent towards other young people and staff.

Gender differences in violent behaviour (before, during and after custody). Regarding pre-custody violence, gender differences were found in those that had a previous knife conviction, with males being more likely to have a conviction for a knife offence than females (χ^2 (1, 287) = 4.75, p = .029). As this is not a significant level, only a trend can be established. However, significant gender differences were found in some specific index offences. Males were significantly more likely to commit acts of robbery than females (χ^2 (1, 287) = 10.71, p <.001). Males were also more likely to have been in possession of a knife or other bladed instrument within their current offence (χ^2 (1, 287) = 7.75, p = .005), and consequentially, males were significantly more likely to have used a knife in their current or previous offence (χ^2 (1, 287) = 11.07, p <.001).

Table 2.6

Cross tabs analysis data exploring gender differences in violence in custody outcomes.

In custody violence type	**Category**	**Female (*N* = 57)**		**Male (*N* = 230)**		**Total *N***	**χ^2**	***p***
		n	**%**	***n***	**%**			
Self-harm	1 Yes	1	1.8	0	0	1	4.049	.199

only	0 No	56	98.2	230	100	286		
Violent towards others only	1 Yes	11	19.3	12	5.2	23	12.286	<.001
	0 No	46	80.7	218	94.8	264		
Victim only	1 Yes	2	3.5	8	3.5	10	.000	.991
	0 No	55	96.5	222	96.5	227		
Victim and violent towards others	1 Yes	8	14.0	154	67.0	162	52.063	<.001
	0 No	49	86.0	76	33.0	125		
Self-harm and victim	1 Yes	0	0	0	0	0	0	0
	0 No	0	0	0	0	0		
Self-harm and violent towards others	1 Yes	7	12.3	3	1.3	10	16.365	<.001
	0 No	50	87.7	227	98.7	227		
Self-harm, victim and violent towards others	1 Yes	17	29.8	28	12.2	45	10.764	<.005
	0 No	40	70.2	202	87.8	242		
Violent to young people	1 Yes	34	59.6	191	83.0	225	14.762	<.001
	0 No	23	40.5	39	17.0	62		
Violent to staff	1 Yes	35	61.4	137	59.6	172	.064	.800
	0 No	22	38.6	93	40.4	115		

Table 2.6 shows the gender differences that were observed when exploring whether individuals had only perpetrated violence towards others, only engaged in self-harming behaviours, and if they had only been the victim of violence from others, and a combination of these variables. Notable findings include that males were more likely to have been victimised in an assault and had also been violent to others than females. Females were significantly more likely to engage in self-harming behaviours than males. Males were also more likely to be

violent to other young people than females.

Ethnicity differences in violent behaviour (before, during and after custody). Ethnicity differences in pre custody behaviour was found in those who had a conviction for a previous knife offence. Those identified as BAME were significantly more likely to have had a previous knife conviction than those identified as white (χ^2 (1, 287) = 16.10, p <.001). In relation to index offences, ethnicity differences were observed in the offence type assault by beating, with more individuals identified as white being charged with such offence compared to those identified as BAME (χ^2 (1, 287) = 8.95, p = .003).

Ethnicity differences were also found in knife possession offences. Those identified as BAME were significantly more likely to have used or been charged with carrying a knife in their current offence (χ^2 (1, 287) = 21.46, p <.001) (, or been charged with possessing a knife in their current or previous offence (χ^2 (1, 287) = 23.41, p <.001), than those identified as white. Within custody, ethnicity differences were found in levels of violence perpetrated towards staff. Those young people identified as BAME, were significantly more likely to have perpetrated acts of violence against staff than those identified as white (χ^2 (1, 287) = 10.60, p <.001). No other ethnicity differences in violent behaviour were found.

Childhood maltreatment, self-reported difficulties, and violent behaviour (before, during and after custody). Using the SDQ as a measure of self-reported psychosocial difficulties, the association between psychosocial difficulties and childhood maltreatment was explored through chi-squared analysis. It was hypothesised that young people who have experienced any type of childhood maltreatment would more likely have higher levels of self-reported difficulties with (4a) conduct, (4b) emotions, (4c) peer problems, as measured on the SDQ and that these higher levels would be associated with higher rates of (5a) violent offending, (5b) violent behaviour in custody and (5c) violent reoffending rates. No significant associations between the experience of abuse and/or neglect and each of the domains on the

SDQ were found (conduct; χ^2 (1, 273) = 1.826, *p* =.177, emotions; χ^2 (1, 273) = .000, *p* =.995, and peer problems; χ^2 (1, 273) = .923, *p* =.337)There were also no significant associations found between high SDQ scores and involvement in previous violent offending (conduct; χ^2 (1, 273) = 2.915, *p* =.088, emotion; χ^2 (1, 273) = 921, *p* =.337, and peer problems; χ^2 (1, 273) =.103, *p* =.749).

However, when exploring those with high scores in each of the SDQ domains and their association with violent behaviour in custody one association was found. Those with high scores in relation to problems with conduct were more likely to have perpetrated acts of violence in custody (χ^2 (1, 273) = 8.114, *p* =.004). Although this did not reach statistical significance, it did highlight a trend within this data. No other associations were found (emotion; χ^2 (1, 273) = 2.945, *p* =.086, and peer problems; χ^2 (1, 273) =.003, *p* =.958).Due to the self-report nature of the SDQ, these results should be viewed with caution. It is possible that the results are influenced by social desirability bias whereby symptoms have been under reported.

Results: Logistic Regression

Violence in custody perpetrated towards staff members. From the first stage of the analysis an association was found between the following four factors (rated as yes/no) and whether violence had been perpetrated towards staff members during the youths time in the establishment: ethnicity, (χ^2 (1, 287) = 10.60, *p* = .001), previous knife offence (χ^2 (1, 287) = 19.21, *p* <.001), previous violent offending (χ^2 (1, 287) = 6.30, *p* = .012) and the experience of any abuse and/or neglect (χ^2 (1, 287) = 5.11, *p* = .024). Table 2.7 displays the results from the logistic regression when these four predictor factors are entered into the model.

Table 2.7

Violence in custody perpetrated towards staff members. Binary logistic regression (N = 287): Variables in the Equation – Step 1.

Risk factor	B	S.E.	Wald	df	Sig.	Exp (B)
Ethnicity	.826	.310	7.117	1	.008	2.284
Any Abuse and or Neglect	.848	.373	5.154	1	.023	.428
Previous Violent Offending	.050	.323	.024	1	.877	.951
Previous Knife offence	.936	.302	9.586	1	.002	.392

Each of these factors were input into the 4-factor logistic regression model. A total of 64.8% of cases were correctly classified from the 4-factor model (see Table 2.8). However, 35.2% were incorrectly classified. A total of 63 young people had been predicted to be violent towards staff but were not (54.8% false positive) and 54 young people were predicted to not be violent towards staff, but they were (31.4% false negative). The model correctly identified 52 (45.2% specificity) of the 115 young people who were not violent towards staff and was sensitive to 118 who were violent to staff (68.6% sensitivity), with 63.1% classed as high risk for being violent to staff.

Table 2.8

Logistic Regression accuracy for the 4-factor model in identifying young people who will be violent towards staff in custody (N = 287). Cut off point 3 or more factors.

Observed	**Predicted Incidences**		
	Violent to staff	Not violent to staff	Total
Violent towards staff	(a) 118 (68.6%)	(c) 54 (31.4)	(a+c) 172 (59.9%)
Not violent towards	(b) 63 (54.8%)	(d)52 (45.2)	(b+d) 115 (40.1%)

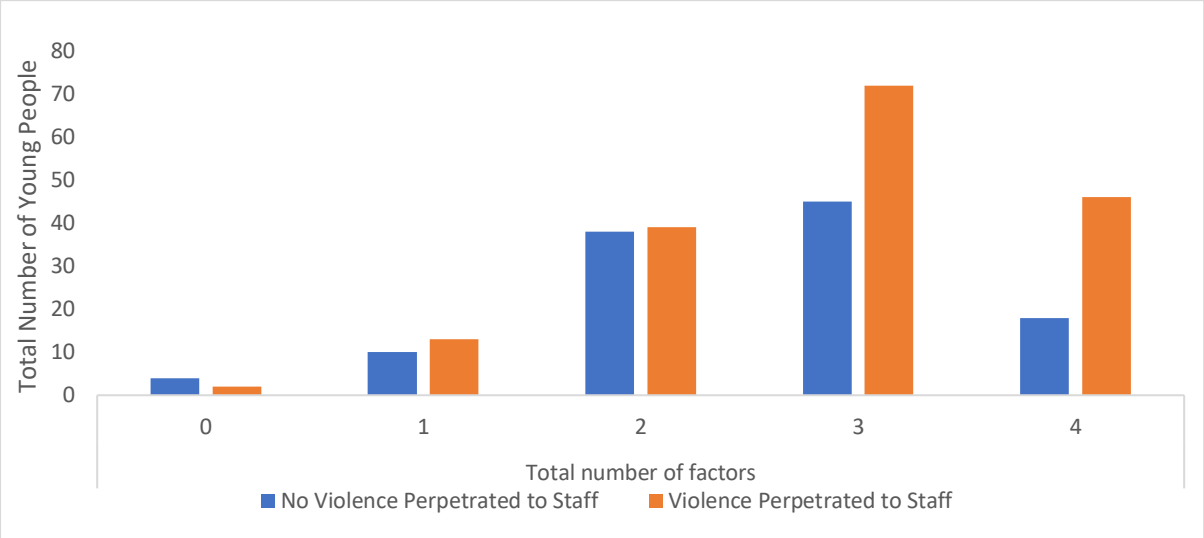
staff			
Predicted total	(a+b) 181 (63.1%)	(c+d) 106 (36.9%)	*N* = 287 (100%)

Overall Correct Classification rate: 56.9%

- Incidence of being violent to staff = (a + c)/N. = 59.9%
- High risk for being violent to staff = (a + b)/N =63.1%
- Positive predictive accuracy of 4-factor model = a/ (a + b). 65.2%
- Negative predictive accuracy of 4-factor model = d/ (c + d). 49.1%
- Risk Ratio (RR) (probability that a young person will be violent to staff) = a/ (a + b) / c/ (c + d). 65.2/ 50.9 = 1.3
- Sensitivity of the checklist = a/ (a + c). 68.6%
- Specificity of the checklist = d/ (b + d). 45.2%

In order to develop a tool that assesses the likelihood that a young person will perpetrate acts of violence towards staff, a summation was completed for each of these risk factors (each coded as 1). Within this, the total number of risk factors present for each young person were added together. The minimum score was 0 and the maximum was 4. Figure 2.1 provides a visual representation of the total summation scores for those who were and those who were not violent towards staff.

Figure 2.1



The 4-factor predictor checklist was only able to correctly classify 57% of cases when a cut off value of three factors was applied. Therefore, young people with three or more factors were 1.3x more likely to be violent to staff when compared with those who have less than three risk/predictor factors present. For example, 46 young people with 4 factors present had been violent towards staff, compared with 18 who had 4 factors present that were not violent towards staff.

Violence in custody perpetrated towards other young people. From the first stage of the analysis an association was found between the following five factors (rated as yes/no) and whether violence had been perpetrated towards other young people in custody during the youths time in the establishment: gender (χ^2 (1, 287) = 15.51, p <.001), knife possession in current or previous offence (χ^2 (1, 287) = 9.75, p = .001) (, previous violent offending (χ^2 (1, 287) = 9.41, p = .002), high conduct scores on the SDQ (χ^2 (1, 287) = 5.19, p = .023), and the experience of any abuse and/or neglect (χ^2 (1, 287) = 5.43, p = .020). Each of these factors were input into the 5 factor logistic regression model. Table 2.9 displays the results from the logistic regression when these five predictor factors are entered into the model.

Table 2.9

Violence in custody perpetrated towards other young people. Binary logistic regression (N = 273): Variables in the Equation – Step 1.

Risk factor	B	S.E.	Wald	df	Sig.	Exp (B)
Gender	1.365	.371	13.537	1	.000	3.915
Any Abuse and/or Neglect	.925	.425	4.728	1	.030	.397
High Conduct SDQ score	.826	.454	3.309	1	.069	.438
Previous Violent Offending	.772	.353	4.775	1	.029	.462
Knife possession in current or previous offence	.669	.330	4.107	1	.043	.512

A total of 79.9% of cases were correctly identified from the 5 factor model (see Table 2.10) and 20.1% were incorrectly classified. There were 78 young people that were incorrectly identified as not being violent when they were (35.8% false negative) and 26 young people identified to be violent when they were not (47.3% false positive). The model displayed a 64.2% sensitivity to those who were violent to other young people as it correctly identified 140 out of 218 cases. The specificity of the model was 52.7%. A total of 60.8% were high risk of being violent towards other young people.

Table 2.10

Logistic Regression accuracy for the 5-factor model in identifying young people who will be violent towards other young people in custody (N = 273). Cut off point 3 or more factors.

Observed	**Predicted Incidences**		
	Violent to young people	Not violent to young people	Total
Violent towards young people	(a) 140 (64.2%)	(c) 78 (35.8%)	(a+c)218 (79.9%)
Not violent towards	(b) 26 (47.3%)	(d) 29 (52.7%)	(b+d)55 (20.1 %)

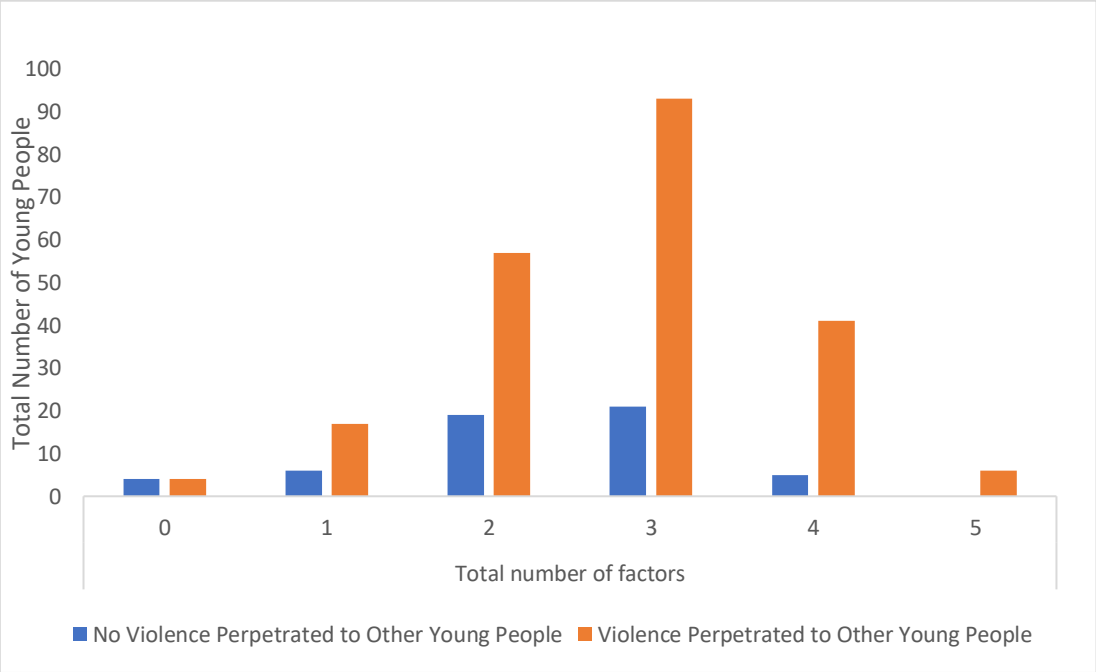
young people			
Predicted total	(a+b) 166 (60.8%)	(c+d) 107 (39.2%%)	*N* = 273 (100%)

Overall Classification Rate = 58.5%

- Incidence of being violent to other young people = (a + c)/*N*. = 79.9%
- High risk for being violent to other young people = (a + b)/*N*. = 60.8%
- Positive predictive accuracy of 5 factor model = a/ (a + b). = 84.3%
- Negative predictive accuracy of 5 factor model = d/ (c + d). = 27.1%
- Risk Ratio (RR) (probability that a young person will be violent to other Young People) = a/ (a + b) / c/ (c + d). 84.3/72.9 = 1.2
- Sensitivity of the checklist = a/ (a + c). = 64.2%
- Specificity of the checklist = d/ (b + d). = 52.7%

To develop a tool that assesses the likelihood that a young person will perpetrate acts of violence towards other young people, a summation was completed for each of these risk factors (each coded as 1). Within this, the total number of risk factors present for each young person were added together. The minimum score was 0 and the maximum was 5. Figure 2.2 provides a visual representation of the total summation scores for those who were and those who were not violent towards other young people.

Figure 2.2



The 5 factor predictor checklist was able to correctly classify 64.2% of cases when a cut off value of three factors was applied. Therefore, young people with three or more factors were 1.2 x more likely to be violent towards other young people than those with less than three risk factors present. When no characteristics are present, the risk of being violent to other young people is equal. Those with all five risk factors present were violent towards other young people 100% of the time.

Discussion

This study aimed to explore the association between childhood maltreatment and patterns of violent behaviour in 287 young people within a custodial establishment in the UK. The results of the study revealed several significant associations between predictor variables and outcome variables related to violence. These predictor variables were then explored in a model that aimed to predict violence levels in custody, both to staff and other young people.

Due to limited sample sizing, all abuse types were combined into a variable referred to as ‘any abuse and/or neglect’. Upon review, this was not deemed a limitation since a recent

systematic review concluded that there was no evidence that specific maltreatment types were stronger predictors of violence than others (Fitton et al., 2020). In addition to small sample sizing of individual maltreatment types, the method of assessing re-offending changed part way through the analysis due to limited data available for post custody offending. Instead, violent behaviour prior to the index offence was used as a measure of reoffending. Consequently it was only possible to explore three of the five hypothesis.

Following the amalgamation of data, it was possible to explore hypothesis 1; those young people who had experienced multiple types of childhood maltreatment would demonstrate higher rates of (a) violent offending, (b) violent behaviour in custody and (c) violent reoffending rates, compared to those who had experienced fewer or no types of childhood maltreatment. The analysed data revealed a significant association between childhood maltreatment and previous offending (of any nature) and with previous violent offending (c). This finding is consistent with previous research (Alfaro, 1981; Cicchetti & Toth, 1995; Farrington, 2003; Fitton, Yu & Fazel, 2020; Malvaso et al., 2016; Malvaso et al., 2021; Smith et al., 2005; Widom, 1989; Widom & Osborn, 2021; Widom et al., 2018). All young people in the sample were in custody for a violent offence, but small sample sizing meant it was not possible to explore individual offence types. Within custody, those who had experienced childhood maltreatment were more likely to be violent to others in custody (staff and young people), and 100% of those who had self-harmed, been violent to others and been victimised by other young people had experienced childhood maltreatment. These hypotheses are consistent with research explored in a systematic review conducted by Goddard and Pooley (2018) that revealed childhood maltreatment was associated with aggressive behaviour and revictimisation. Specific gender differences were observed in the three components of in custody violence: males were more likely to be victimised as well as be violent to others than females, females were more likely to self-harm than males and males were more likely to be

violent to other young people than females. Whilst these gender differences are in line with theories that suggest females internalise emotional distress (Angelakis et al., 2019), it does differ from reports by Widom and Osborn (2021) whereby externalised aggression in females was also high. Possible explanations include low numbers of females being in custody at any one time and therefore methods to prevent interpersonal violence are easier to implement.

Limited sample sizing within each type of maltreatment meant it was not possible to explore hypothesis 2 (females who have experienced emotional and/or sexual abuse would demonstrate higher rates of (a) violent offending, (b) violent behaviour in custody and (c) violent reoffending rates, than males) or hypothesis 3 (males who have experienced neglect and/or physical abuse demonstrate higher rates of (a) violent offending, (b) violent behaviour in custody and (c) violent reoffending rates, than females).As a result, it was not possible to ascertain in this study whether females who have experienced emotional and sexual abuse demonstrate higher rates of (a) violent offending, (b) violent behaviour in custody and (c) violent reoffending rates, than males or if males who have experienced neglect and physical abuse demonstrate higher rates of (a) violent offending, (b) violent behaviour in custody and (c) violent reoffending rates, than females

In relation to hypothesis 4 (a, b, and c) and 5 (a, b, and c) (young people who have experienced multiple types of childhood maltreatment would more likely have higher levels of self-reported difficulties with (4a) conduct, (4b) emotions, (4c) peer problems, as measured on the SDQ and that these higher levels would be associated with higher rates of (5a) violent offending, (5b) violent behaviour in custody and (5c) violent reoffending rates), no significant associations were found. One trend was found in relation to high conduct scores and the perpetration of violence in custody (χ^2 (1, 273) = 8.114, p =.004) but this did not reach a level of statistical significance. The lack of significant findings in relation to SDQ scores were particularly surprising given that recent studies have found SDQ scores to be higher in young

offenders compared to their non-offending counter parts (Gilbert et al., 2021). Although this study did not include a non-offending comparison group, it could be inferred from Gilbert et al.'s (2021) findings that young people who are not violent in custody would have lower SDQ scores. This is supported by other research that has identified that those with high SDQ scores were more likely to engage in violence toward others (Wandera et al., 2017). Within the current study, this was not found to be the case.

Through exploration of the data, further noteworthy findings outside of the four hypotheses were identified. Ethnicity differences were also observed in the violence outcome variables. Young people identified as BAME were significantly more likely to have used a knife in their index or previous offence than those identified as white. Although this research placed Black, Asian and Minority Ethnicities into one group identified as BAME, other research has focused upon the differences that black individuals, as opposed to Asian and other minority backgrounds experience with regards to the justice system. These studies offer potential explanations for the differences observed in this study. For example, black individuals are more likely to receive a custodial sentence for all crimes including knife crimes than white young people (Frater & Gamman, 2020; Hoods, 1992; May et al., 2010; Waller, 1988). Knife crime is more prominent in low income/high crime areas where the population of black individuals is higher (Alleyne & Wood, 2010) and there is also tougher sentencing in those areas (Briggs, 2017). Racial prejudice within stop and search practices amongst the police is another contributing factor (Frater & Gamman, 2020). These findings offer insight into the documented over representation of black individuals within the youth justice system (Barn et al., 2018). In addition to knife crime differences, young people identified as BAME were also significantly more likely to have perpetrated acts of violence towards staff compared to those young people identified as white. Decades of research has explored this apparent difference, with theories such as strain theory (Agnew, 1992; Clemmer, 1940; Sykes, 1958) and

importation theory (Irwin & Cressey, 1962) being drawn upon to provide explanations for such racial differences. Other explanations have focused on the disproportionality in ethnicities of custody officers, with only 6% being identified as black (Jolliffe & Hague, 2017). Jolliffe & Hague (2017) argue that such racial differences between prisoners and officers may suggest a lack of cultural understanding of the needs of black prisoners. They draw attention to potential unconscious bias effects within the systemic structures in place in custodial environments, referred to as structural racism, and argue that a sevenfold increase in black officers is needed to address the identified disproportionality ratio, specifically within the youth sector (Slawson, 2017). Furthermore, in the current study, young people identified as BAME were also significantly more likely to have a parent that had a previous conviction or was currently serving a sentence for an offence, compared to those young people identified as white. This further highlights the difficulties black individuals continue to face in relation to the justice system (Frater & Gamman, 2020).

The ethnicity differences that were found in this investigation warrant further exploration. Focus groups and qualitative research may shed light into the cognitions that drive the observed difference in violence perpetrated towards staff members. These clear ethnicity differences highlight the need for more work to be done on building positive relationships between authority figures and BAME young people, breaking down barriers and improving trust in services and authority figures. Research has shown that black individuals are more unfairly treated within the justice system compared to Asian and other ethnic groups (Barn et al., 2018). Therefore, it is recommended that such exploration explore ethnicities individually, as opposed to being grouped as BAME. Due to sample sizing, this method was opted for in this study. An exploration of the characteristics displayed by officers identified as forming the most supportive relationships with black young people would help to shape the future of youth custody. It would highlight the skills/characteristics of officers/authority figures that are likely

to have the most positive impact on black young people. This would help in recruitment and in systemic changes such as where officers who meet the criteria for forming more supportive relationships with black young people should be positioned to work. Such changes may assist to reduce levels of violence perpetrated towards staff in custody. This study did not explore the ethnicities of officers that were assaulted by young people in custody. However, an exploration of the ethnicities of staff that were assaulted by young people of different ethnicities, would provide valuable information for future practise, and would pave the way for research that aimed to promote positive change for the way black young people are treated within the justice system.

In order to utilise these findings to produce a practical tool that can be implemented by those working with young people in custody with a history of childhood maltreatment, two predictive models were explored. Given the rise in custody violence (Ministry of Justice, 2021) and increased turnover in custodial staff (Byrd et al., 2000; Matz et al., 2014; Rizzo et al., 2021), it was deemed appropriate to explore predictive factors for violence in custody. Using the data, those variables that had a significant association with violence towards staff (ethnicity (BAME), having a previous knife offence, having a previous violent offence, and experiencing childhood maltreatment), were used to create a predictive model. This model was able to accurately predict 65.2% of cases where a young person was violent towards a staff member. The data was also used to explore a model predictive of violence towards other young people in custody using the significant variables associated with this (gender (male), knife use in current or previous offence, previous violent offending, high conduct scores on the SDQ scale and having experienced any abuse and/or neglect). This 5-factor model was able to accurately predict 84.3% of cases where a young person was violent toward another young person in custody. If utilised in a checklist format, the presence of three or more risk factors places a young person at 1.2 times greater risk of being violent towards another young person, compared

to those with two or less risk factors present.

However, both models for violence against staff and other young people had low levels of specificity (42.5% and 52.7% respectively). These values highlight that although the predictive accuracy and sensitivity of the models are above reasonable levels (68.5% and 64.2% respectively), the false alarm rate is so high that there may be little utility in implementing the model as a checklist screening tool. A high number of young people are likely to be identified as being violent that would not be. The biased sample is likely to have contributed to these low levels of model specificity. For example, 60.1% of the sample had perpetrated acts of violence towards staff, 79.8% had perpetrated acts of violence towards other young people and only 13.9% had not experienced any abuse or neglect. Therefore, violence and abuse variables were not normally distributed. Consequentially, it is recommended that future research that explores the development of tools to predict violence within custody be conducted on a broader sample of violent and nonviolent young people, including those within the community.

Limitations

Although the results of this study have added further to the growing evidence base within the field, it is important to note the limitations within these results. One notable limitation is that file data alone was used for this study. Therefore inconsistencies of richness of data will mean that one data set may contain more detail about a young person's experiences than another. This is further compounded by the limits in operationalising variables in retrospective designs. The richness of the data is therefore inconsistent, as what one probation officer/social worker constitutes as emotional abuse for example, may differ to another's. Much of the retrospective data also relies on social services involvement with young people and subsequent reporting of maltreatment, however, some young people may have experienced maltreatment but not disclosed this and it may not be known to services, therefore some data

may not be fully representative of the population sample. The use of binary coding of the data also limits the richness of the data, insofar as it does not provide estimations of its frequency, severity, or degree of threat. The utilisation of self-report measures within the population would have added richness to the data, although caution is needed when using self-report measures, as in the case of the SDQ in this study, due to the potential for social desirability bias. Furthermore, due to the retrospective nature of the study, it is also limited to the number of datasets available. Additionally, due to a large number of young people moving establishments, the recording of recidivism rates was limited. This meant pre-custody offending was used as a measure of recidivism. This means there may have been young people who reoffended after their time in custody but were not identified as engaging in re-offending. The grouping of young people into two ethnic groups, white and BAME, has been noted as a limitation. However, due to sample sizing it was not possible to explore differences between all ethnic groups, but forethought should have been given to the implications of grouping individuals in this manner.

Implications

The limitations of this study draw attention to the need for further research within this area. One potential area of research that could build upon the limitations of this study would include the comparison of offending and non-offending populations who have experienced childhood maltreatment. Samples such as this would enable models of violence prediction to be based on a normally distributed sample. The results from such explorations would further enhance the findings from this research and has the potential to assist in the development of violence reduction strategies for custodial settings. Given the rise in custodial violence (Ministry of Justice/Youth Justice Board, 2021), the need for this support is critical. An additional focus for future research should be upon the life trajectories of children who experience abuse and/or neglect. This would provide vital information to assist with early

intervention strategies. If the factors that have protected or moderated against the impact of childhood maltreatment were understood, and this knowledge was implemented in clinical practice, the number of young people entering the justice system may be reduced. Mixed methods approaches would also assist to reduce the difficulties with the richness of data that sole reliance on retrospective data can create.

However, the limitations of this study do not discount the findings of this research. Moreover, the findings from this research have clear implications for the treatment of young people in custody. Given that the experience of abuse and/or neglect was reported in 85.7% of the cases in this study and was also identified as a risk factor for violence towards both staff and young people, this research has emphasised the need for interventions that are underpinned by trauma informed practice to help address violent behaviour. The systematic review detailed in the following chapter, Chapter 3, explores the effectiveness of trauma informed interventions in reducing violence displayed by young people in custodial settings. More focus is needed upon pre-emptive measures and interventions; those that focus on preventing young people entering custody with particular focus needed upon interventions for childhood maltreatment. Further exploration of the factors that contribute to the over representation of black young people in custody and more focus on reducing systemic racism within such establishments is needed.

Conclusion

In conclusion, this study explored the role that childhood maltreatment plays on violent behaviour across three time points in youth justice: pre-custody violence, in custody violence and violent recidivism. By exploring retrospective data of 287 young people who were detained in a youth custody facility in the UK, this study revealed that the experience of abuse and/or neglect was significantly related to violence at each time point. In addition to this, several other risk factors were found to contribute to violence levels, specifically violence levels in custody.

Gender, ethnicity, and prior violence were risk factors identified to contribute to in custody violence alongside the experience of abuse and/or neglect. The results and exploration of a model of positive predictive accuracy identified a need for further research in the field with a broader sample. The findings contributed to a wide range of recommendations that would improve practise and treatment outcomes for young people within the youth justice system. Recommendations in relation to future research in key areas have been made. Specific attention in relation to trauma informed interventions/practices for reducing custodial violence has been identified as an ongoing area of critical need. The systematic review detailed in Chapter 3 aims to explore the current evidence base that explores the effectiveness of trauma informed interventions in reducing custodial violence.

Chapter 3

Investigating the effectiveness of treatment for trauma in reducing custodial violence in adolescent offenders – a systematic review

Abstract

Aim: This systematic review aimed to investigate the effectiveness of trauma informed interventions in reducing levels of violence that young people display in custodial settings. **Method**: Inclusion criteria were English only randomised controlled trials that utilised psychological trauma interventions with young people aged 10-25 and compared them to treatment as usual or no intervention, levels of anger and aggression were assessed. Eleven electronic bibliographic databases and gateways were searched. These included PsychINFO, Web of Science, EBSCO and Google Scholar. From this search, 25,312 titles were screened. A total of 3,341 duplicates were removed, 20,380 were excluded following title screening as were not relevant and 1571 were removed as did not meet the inclusion criteria. A total of 20 articles met the full inclusion criteria and underwent quality assessment. The review included 1749 participants. **Results**: Overall, the results revealed that a range of interventions were found to be effective in reducing aggressive behaviour in youth in custodial settings. Seven studies reported on effect sizes revealing an overall large effectiveness of the interventions (M=.85) However, only two studies were found to have a high level of methodological rigour. These both were based in cognitive theory (Trauma Focused – Cognitive Behaviour Therapy and Cognitive Behaviour Therapy). **Conclusion**: The limited number of high quality studies identified in this review reveal a need for further high quality research aimed at exploring the effectiveness of trauma informed interventions in reducing violence in youth custody settings. Implications of the findings and recommendations for future research are discussed.

Keywords: Childhood trauma, youth violence, trauma informed, intervention, custody,

Introduction

In the past 10 years, there has been an 11% increase in violent offences committed by Children and Young People (CYP) in England and Wales (Ministry of Justice/Youth Justice Board, 2021). These individuals, often referred to as juveniles in research, are those aged 12-18. In 2021, 70% of CYP in Youth Custody in England and Wales had a violent conviction. In addition to the increase in violent offending, the number of violent incidents within custody has increased substantially. There was a notable 19% increase in the use of Restrictive Physical Intervention (RRI) as a result of aggressive behaviour from the year 2019 to 2020, with just under 3,900 incidents of assault reported. Within this, 52.5% of the population in youth custody were involved in violent incidents (Ministry of Justice/Youth Justice Board, 2021). Given this increase of violence displayed by youth in custody, it is essential that the contributing risk factors for youth violence are explored, and interventions designed to address the risk areas identified and implemented.

Trauma exposure is one such risk factor that has been established to contribute to violent offending in youth (Ford et al., 2006; Kerig & Becker, 2010; Wolff et al., 2018). Abram et al. (2013) reported 92.5% of youth in a detention centre in the USA had experienced at least one traumatic event. Further to this, rates of poly victimisation are reported to be high in this population (Charak et al., 2018) Similarly, Adams et al. (2013) identified that youth who display delinquent behaviour are three times more likely to report exposure to traumatic events and symptoms of PTSD compared to their non-offending counterparts. There is also a wealth of evidence that identifies cumulative trauma having a more negative effect on behaviour in youth than a single traumatic event (Anda et al., 2006; Boxer et al., 2022). Boxer et al. (2022) reported an average trauma experience rate of 2.76 events in a sample of 879 young offenders. Studies using Adverse Childhood Experiences (ACEs) as a measure of trauma exposure further highlight this. ACEs include 10 forms of abuse, neglect and household dysfunction that is

experienced in childhood (Baglivo, et al., 2014). In a large scale study of 64,329 young offenders, 90% reported two ACEs, and 73% reported three ACEs (Baglivo et al., 2014). It should be noted that this data is retrospective and it is important to consider findings from prospective studies. Prospective studies have revealed an absence of a direct childhood trauma/maltreatment to violence pathway and highlight that whilst some individuals with maltreatment histories go on to engage in violent behaviour, not all do (Madigan et al., 2019; Milaniak et al., 2015; Widom et al., 2014; Widom et al., 2015). These findings highlight the complexity of human development. Despite this, the volume of evidence that indicates a high prevalence of trauma exposure within criminal justice settings cannot be ignored. It has therefore been argued that increased attention should be paid to the trauma histories of youth within the criminal justice system, with a wider implementation of trauma informed care within custodial settings (Branson et al., 2017; Kusmaul et al., 2015).

The National Institute for Health and Care Excellence (NICE) recognises the serious adverse impact that abuse and neglect can have on young people, including increasing the likelihood of engaging in antisocial and violent behaviour. In response, NICE have provided recommendations for treatment interventions for CYP who have experienced abuse or neglect. For those aged 12-17, NICE recommend MST-CAN. MST-CAN has been argued to be an effective community alternative to custody (Leschied & Cunningham, 1998). However, MST-CAN is not an intervention widely utilised within custodial settings, potentially due to the operational constraints in doing so. Other interventions that can and have been widely utilised within custody to treat trauma are those which focus on improving self-regulation and developing behavioural management strategies. Within the UK these include NICE recommended interventions such as Trauma Focused Cognitive Behaviour Therapy (TF-CBT) which can be delivered in a group setting or on an individual basis, and also psychoanalytic therapy (NICE, 2018).

Over recent years, a wealth of evidence has accumulated that reveals the positive impact of trauma informed interventions such as TF-CBT on reducing symptoms of trauma in youth, with effect sizes between .83 and .91 reported (Hoogsteder et al., 2021; Peters et al., 2021). Indirect evidence from research into other trauma treatments has shown that violence can be reduced through therapies aimed at reducing PTSD symptoms (Black et al., 2012; Silverman et al., 2008). A meta-analysis completed by Auty et al. (2017) identified that yoga and mindfulness interventions in custodial settings had a positive impact on behaviour, in custody with adult male prisoners (d = 0.30), whilst trauma informed treatment in residential facilities has shown to reduce violent incidents in youth (Baetz et al., 2019). Research exploring the effectiveness of trauma treatments in reducing levels of violence have mostly taken place in settings such as residential care and also in the community. However, a systematic review by Zettler (2020) provides a useful overview of the use of trauma informed treatment in youth justice settings. They explored the use of Cognitive Behavioural Therapy (CBT) as a trauma informed treatment with young offenders and reported the evaluated trauma informed programmes show promise in reducing trauma symptoms and behavioural problems in young offenders.

Additionally, Rhoden et al. (2019) conducted a systematic review exploring trauma interventions for young offenders. From reviewing a range of trauma treatments within a variety of settings, they aimed to evaluate the effectiveness of trauma interventions in reducing PTSD symptoms and addressing externalising behaviour problems. They found studies into Eye Movement Desensitisation and Reprocessing (EMDR) and TF-CBT to have the highest levels of methodological rigour and the least biases when using the Risk of Bias Tool. Despite this, studies into EMDR did not use a sample comprised of solely young offenders and the studies exploring TF-CBT were not conducted in a custodial environment, meaning the findings may not be generalisable to all youth, especially those in custodial settings. The

authors included a range of quantitative and qualitative studies conducted in a range of settings in the USA. Although limiting the sample to the USA meant the findings could inform the justice system practises in the USA, the narrow pool of research could have meant critical findings that have the potential to influence policy and practise were missed. In addition to this, only three of the 16 included studies were Randomised Controlled Trials (RCTs), which are known for their rigorous methodology. This may indicate limitations regarding methodological rigour within the studies.

In order to build on these limitations and build on the knowledge base, this systematic review aimed to explore the RCTs that have implemented trauma informed interventions in youth custody settings. The review aimed to investigate their effectiveness in reducing levels of violence that young people display in custodial settings. The findings from this will help to inform policy and practice within the youth justice system.

Method

The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) Guidelines (Moher et al., 2009) were used for the search and selection process of articles. PRISMA is a structured way of reporting on the evaluation of RCTs and the effectiveness of interventions. Furthermore, to help avoid duplication and to reduce reporting bias, this systematic review was registered on PROSPERO on 25/01/2021 (registration number: CRD42021226257).

Search Strategy: Sources of Literature

Database searches were conducted to identify the extent of available data and to inform potential search parameters. The search was limited to references published from 1982 onwards. The rationale for this was that the author aimed to ensure all interventions that included NICE recommended trauma treatments were identified within the search. NICE recommends the implementation of TF-CBT in the first instance when treating children with a

history of trauma. NICE also recommend the use of EMDR as treatment for cases where TF-CBT has not been effective. EMDR was initially developed in 1987, with the first studies evidencing its efficacy in 1987 (Shapiro, 1989). The search parameters were restricted to this time frame accordingly. The search took place in January 2021. The following electronic bibliographic databases and gateways were searched comprehensively for relevant academic journals: PsychINFO, MEDLINE, EMBASE, PROQUEST ASSIA, PROQUEST Criminology Collection, Web of Science, Science Direct, Cochrane Central, EBSCO, Google Scholar, Prospero.

Search Strategy: Search Terms

After a scoping search of relevant literature the following search terms were identified and a range of combinations of these terms utilised within all databases:

Child* OR Young* OR Youth* OR Adolescen* OR Juv*

Offen* OR Deliquen*OR Crim* OR Incarcerat* OR Convic*

Prison* OR Detention* OR Institute* OR Community* OR Youth Offending Team* OR Youth Offending Service*

Treatment* OR Program* OR Therp* OR Practice* OR Rehabilitation*

Trauma* OR Maltreatment*

Violen* OR Aggress* OR Misconduct* OR Assault* OR Anger*

Outcome* OR Evaluat* OR Effect* OR Experiment* OR Trial* OR Compare* OR Impact OR Consequen* OR Research*

Study Selection

End note was used as a platform for references to be imported to. Following removal of duplicates. a pre-defined inclusion/exclusion criteria (see appendix A) was applied to all retrieved articles from the searches. This criterion was based on the PICO framework, an acronym for Population, Interventions, Comparative Group and Outcome Measure(see Table 3.1). The studies that met these criteria were then subject to quality assessment (see Table 3.2).

The included population were young people aged between 10 and 25 years. This age range was selected as 10 is the age of criminal responsibility in England and Wales. The age of 17 was set as the initial cut off as those older than 18 would legally be classed as adults, however, a number of custodial facilities within the USA were reported to contain individuals up to the age of 25. In order to ensure key findings were not missed, these studies were also included. The population were those who resided within a custodial setting due to being convicted for committing an offence. Studies including individuals on remand were not included as could not be conclusively identified as an offending population. Studies conducted outside of custodial settings were also excluded. Terminology used to describe custodial settings within research, particularly research conducted in the USA varies. Terms identified within this search included juvenile correctional facilities, detention centres for adjudicated youth, treatment facilities for adjudicated youth, juvenile justice residential commitment programme, juvenile detention facility, and attention centre.

In regard to interventions explored, those which were trauma informed or could be linked to theories around trauma were included. Each study was rated based on how trauma informed the study was (see the data extraction section for more detail on this process). Studies which did not contain a comparison group were excluded and those with wait list control groups or a comparison group were included.

Studies were excluded if they did not measure outcome levels of violent behaviour or aggression. Qualitative studies were also excluded as they did not meet the criteria of a RCT. Furthermore, studies were excluded if they did not randomise participants to treatment groups. In addition to this, due to difficulties with translating papers, only articles printed in English were included.

Table 3.1. Definitions of Inclusion and Exclusion Criteria

Criterion Label	**Criterion Description**
Participants	Young people aged between 10-25 detained in a custodial facility and have been convicted for an offence.
Characteristics and Interventions	Randomised Psychological trauma intervention (MST, compassion focused therapy, cognitive analytic therapy, psychotherapy EMDR, trauma focused CBT, DBT, CBT)
Comparative Groups	Treatment as usual No psychological trauma intervention
Outcome Measures	Levels of anger, aggression and/or violence
Study Type	Randomised Controlled Trials
Language	English
Date of Publication	1982 onwards
Country of Origin	Any
Exclusion	Remand population, non-randomised, no comparison group, case studies, case series, non-empirical studies/papers, e.g. narratives, reviews, editorials, letters, biographies

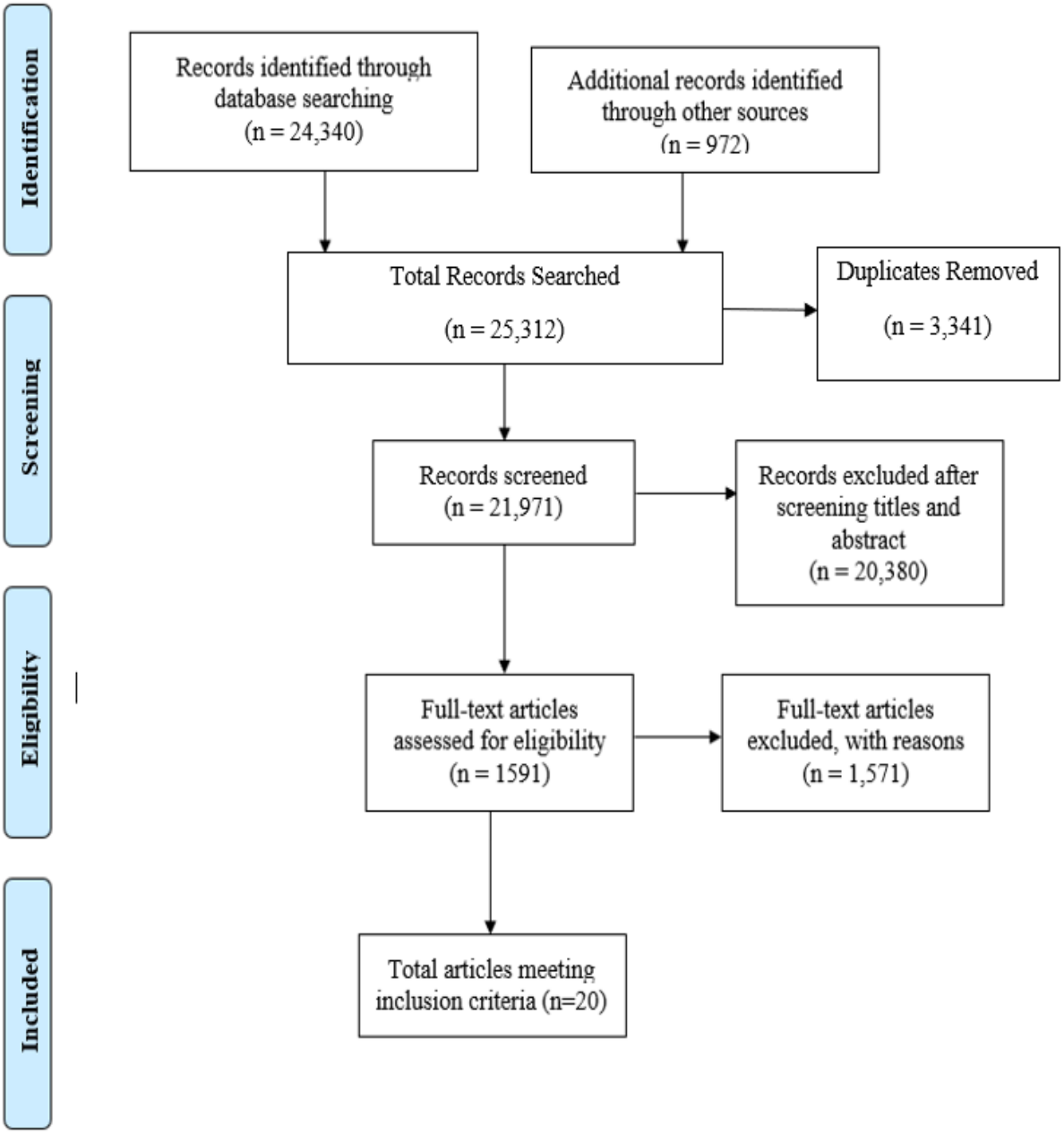


Figure 3.1. Systematic Review Search Strategy

Quality Assessment

Following application of the inclusion/exclusion criteria, those studies deemed suitable were each assessed for their methodological quality. The revised Cochrane Risk of Bias tool for randomised trials (RoB 2; Sterne et al., 2019) was used to assess the risk of bias in the findings of the included articles (see Appendix B). The tool assesses five areas where bias may

impact upon the obtained results. These include bias within the randomisation process, bias due to deviations from intended interventions, bias due to missing outcome data, bias in measurement of the outcome and bias in the selection of reported results. The RoB 2 was applied to all studies that met the inclusion criteria and scoring guidance that accompanies the tool was used to assign a level of risk to each. *Low* risk (0) was assigned to those studies with high quality methodology, whereas *high* risk (2) was assigned to those with low methodological rigour. A rating of *some concerns (1)* was assigned to studies where the methodology had its limitations but not to the level that would be classed as *low* (Sterne et al., 2019). The first author applied the RoB 2 to all included studies (see Table 3.2).

In order to provide consistency in quality assessment, a second independent reviewer, who had experience in systematic literature reviews, applied the RoB 2 to two studies (10%). Inter-rater reliability was assessed using Cohen's *k*. A 66.7% inter-rater reliability was obtained (p <.05). This was identified to be a substantial inter-rater agreement and a general consensus between the two reviewers was met. There was a 100% agreeableness for the risk of bias rating on domain 1 (risk of bias arising from the randomisation process), domain 4 (risk of bias in measurement of the outcome), domain 5 (risk of bias in selection of the reported result) and overall risk of bias rating. Discrepancies occurred in the risk rating assigned to domain 3. In each of the reviewed articles, the risk of bias rating assigned to domain 3 (missing outcome data) by the author was rated as having a low risk of bias. The independent reviewer rated both in this area as having some concerns and reported this to be due to lack of information in the article referring to missing data. However, following discussion and exploration of the data, it transpired there was no missing data in the articles and an agreement made with the authors risk rating. The other discrepancy in the assigned risk of bias ratings was in domain 2 (risk of bias due to deviations from the intended interventions). The author rated this as having a high risk of bias due to the lack of information provided to be able to fully assess this area. The same

rationale was used for the independent reviewers scoring; however, they provided a low risk of bias rating. Upon further exploration with the independent reviewer, it transpired that this rating was made in error and should have also been rated as high.

Data Extraction

A pre-defined data extraction tool was utilised to extract and collate data from the studies that were included (see Appendix C). This tool assisted with data synthesis and ensuring relevant information was captured. In doing so, it ensured conclusions could be drawn from understanding this systematic literature review. Data that was extracted included demographic data, sample sizing in both the intervention and comparison group, outcomes, and the statistical analysis of the outcomes. In addition, each study was rated based on how trauma informed the intervention was. Those studies which focused specifically on trauma and reducing symptoms of PTSD (including anger and/or aggression) were assigned the highest rating (3). Those studies which make specific reference to trauma within the article but focus on other symptomatology of trauma, such as aggressive behaviour, as opposed to PTSD specifically were assigned the mid rating value (2). Those studies which make no reference to trauma in the article but assess anger and/or aggression (symptoms of trauma) were rated lowest (1).

Table 3.2. Quality Assessment ratings of included studies (N = 20)

Reference	Intervention	Risk of Bias arising from the randomisation process	Risk of bias due to deviations from the intended interventions (effect of assignment to the intervention)	Missing outcome data	Risk of Bias in measurement of the outcome	Risk of Bias in the selection of the reported result	Total Risk of Bias Score
Ahrens and Rexford (2002)	Cognitive Processing Therapy	2	1	0	1	0	4/10
Armstrong (2002)	Moral Reconation Therapy	0	1	0	2	0	3/10
Bunford (2016)	Interpersonal Skills Group – Corrections Modified	1	1	1	1	0	4/10
Clair-Michaud et al. (2016)	Motivational Interviewing	1	1	1	1	0	4/10
Cohen et al. (2016)	Trauma Focused-CBT	0	0	1	0	0	1/10
Erickson (2013)	Aggression Replacement Training	0	1	1	0	0	2/10
Evans-Chase (2015)	Mindfulness	0	1	1	1	0	3/10
Glick and Goldstein (1987)	Aggression Replacement Training	2	2	0	0	0	4/10
Goldstein et al. (2007)	Anger Management	2	1	2	1	0	6/10
Goldstein et al. (2018)	Juvenile Justice Anger Management	1	1	1	1	0	4/10

Hilyer et al. (1982)	Physical Fitness programme	0	1	1	1	0	3/10
Himelstein et al. (2015)	Psychotherapy plus mindfulness	1	1	1	0	0	3/10
Milani et al. (2013)	Mindfulness Based Cognitive Therapy	2	2	0	0	0	4/10
Mitchell et al. (2011)	CBT	0	1	0	0	0	1/10
Ovaert et al. (2003)	CBT for PTSD	1	2	1	1	0	5/10
Raider et al. (2008)	Structured Sensory Intervention for Traumatized Children, Adolescents and Parents	1	1	1	1	0	4/10
Rohde et al. (2004)	CBT (coping course)	1	1	0	1	0	3/10
Shelton et al. (2009)	Dialectical Behaviour Therapy – Corrections Modified	1	1	1	1	0	4/10
Swart and Apsche (2014)	Mode Deactivation Therapy	0	1	0	1	0	2/10
Umbach et al. (2018)	CBT	1	1	1	1	0	4/10

Results

Description of Studies

The search identified 25,312 articles which were extracted to Endnote. Of these, 25,292 were excluded. There were 3341 duplicates and 20,380 were excluded due to lack of relevance after their titles were screened. The remaining 1591 articles were screened in depth against the identified inclusion criteria. A large volume of full texts were screened in depth as the abstract did not always clearly identify the nature of the environment where the data was collected. This was the result of the variation in terminology that is used in research to describe custodial facilities. Terms identified within this search included juvenile correctional facilities, detention centres for adjudicated youth, treatment facilities for adjudicated youth, juvenile justice residential commitment programme, juvenile detention facility, and attention centre. Consequentially, focus was placed upon the methodology section to ensure the environment met the inclusion criteria. A total of 20 articles met the full inclusion criteria.

Characteristics of Included Studies

The 20 studies included contained a total of 1749 individuals (1522 males and 227 females). This ranged from 12 individuals in one study to 268 individuals in another. Participants' age ranged from 12 to 25. All included studies were explored separately and no overlap observed (see Table 3.4). The majority of the studies were conducted in the USA (n = 18), one was conducted in the UK and one was conducted in Iran. All studies included utilised a method of randomisation of participants to treatment and control conditions.

A range of interventions were utilised by the researchers (see table 3.4). Six were rated as being highly trauma informed, two were rated as being trauma informed to some extent, and 12 were rated as being the least trauma informed. The majority were manualised interventions (n = 15) and a substantial proportion were delivered in a group (n = 17), as opposed to an individual format (n = 3).

Measures used to assess aggression varied between studies. The most common measure was the Buss and Perry Aggression Questionnaire (Buss & Perry, 1992). This was utilised in five of the included studies. The Youth Self Report scale (YSR; Achenbach, 1991) was utilised in four studies. Other self-report assessments used in the studies included the State Trait Anger Expression Inventory (STAXI; Spielberger, 1991) (n = 2), the Novaco Anger Scale and Provocation Inventory (NAS-PI; Novaco, 2003) (n = 1), the PTSD symptom scale (Foa et al., 1993) (n = 1), the University of California at Los Angeles Post Traumatic Stress Disorder Reaction Index for DSM-5 (UCLA PTSD-RI; Steinberger & Brymer, 2008) (n = 2), the Profile of Mood States questionnaire (McNair et al., 1971) (n = 1) and the Delinquent Activities Scale (DAS; Reavy et al., 2012) (n = 1). Journals were used in one study (Evans-Chase, 2015). Interestingly, very few studies utilised observational data in the form of incident reports (n = 5), meaning that the majority relied upon self-report data which relies upon an individual having a good level of insight into their problems, as well as the individual not attempting to impression manage, rather than direct observations of behaviour.

Quality of included studies

All studies included in the review utilised an experimental design where trauma symptomology including aggressive/externalising behaviour problems were measured before and after an intervention was implemented. All had clearly focused research questions. Of the 20 included studies, only two were rated as having a high level of methodological rigour (Cohen et al., 2016; Mitchell et al., 2011). However, only one of the reviewed studies was identified as having a low level of methodological rigour and high risk of bias rating (Milani, Nikmanesh, & Farnam, 2013). The lack of clarity in the description of the methods used contributed to this high rating.

The remaining 17 studies that were included within this review were identified as having some concerns in their methodology and therefore concerns of potential bias. Four

studies were rated as having a high risk of bias in relation to the randomisation process (Ahrens & Rexford, 2002; Glick & Goldstein, 1987; Goldstein et al., 2007; Milani et al., 2013). This was due to limited information about the processes followed for randomisation being provided within the article. Missing outcome data was another source of bias in some of the reviewed studies (n = 12). A common contributor to missing data was due to dropouts. However, one study reported missing data to have occurred due to nine computer files being corrupted and four were missing (Umbach et al., 2018).

Risk of bias in measurement outcome was found in 12 of the included studies. This bias was found in studies where self-report measures were solely relied upon as an outcome measure. Further to this, only two studies reported on the blinding of therapists (Cohen et al., 2016; Evans-Chase, 2015), none reported on the blinding of participants. It would have been difficult to blind participants and therapist to treatment conditions, as both would have inherently been aware of the intervention they were receiving or delivering. However, both lack of blinding and sole reliance on self-report measures calls the reliability of the outcomes into question. Conversely, the sole reliance on observational data is not without its limitations. For example, comparisons between treatment sites where the staff to youth ratio differs, may mean behavioural violations are reported differently due to the variations in level of surveillance. This was an identified limitation within Armstrong's (2003) study.

Other methodological issues found within the reviewed studies are discussed further in this report.

Descriptive Data Synthesis

The 20 included studies were examined in relation to the intervention type implemented and the outcomes of this intervention. These have been grouped into five categories: CBT interventions, manualised CBT interventions for anger, DBT informed interventions, hybrid interventions and other interventions (including physical activity, sensory therapy, and

therapeutic environments). Table 3.3 provides an overview of the reported outcomes (including *p* values and effect sizes) of the interventions included within this analysis. The remainder of this section provides a more detailed account of the studies that were included within this review.

Table 3.3. Intervention Outcome – reported significance and/or effect size (*N* = 20)

Intervention type	Study	Population	*p*	Effect size
Cognitive Behaviour Therapy	Cohen et al. (2016)	Male (*n* = 39) Female (*n* = 42)	<.001	-
	Mitchell, et al. (2011)	Male	-	*d* =.87
	Ovaert et al. (2003)	Male	.05	-
	Rohde et al. (2004)	Male	.05	
Manualised CBT	Ahrens & Rexford (2002)	Males	<.001	-
	Erikson (2013)	Female	.61	-
	Glick & Goldstein (1987)	Male	<.001	-
	Goldstein et al. (2007)	Female	.18	*f* =2.05
	Goldstein et al. (2018)	Female	<.01	-
DBT informed interventions	Bunford (2016)	Male	-	*d* =.80
	Evans-Chase (2015)	Male	-	-
	Himelstein et al. (2015)	Male	<.05	-
	Milani et al. (2013)	Male	<.01	*d* =..30
	Shelton et al. (2009)	Male	<.001	
Hybrid interventions	Swart & Apsche (2014)	Male	-	*d* =1.79

	Umbach et al (2018)	Male	-	d =.05
Other interventions	Armstrong (2003)	Male	<.001	f =-.126
	Clair-Michaud et al. (2016)	Male (m=155) Female (n = 34)	.001	-
	Hilyer et al. (1982)	Male	<.001	-
	Raider et al. (2008)	Male (n = 11) Female (n = 9)	-	-

Note. Cohen (1988) guides that a Cohen's d value of ≥ .20 is a small effect, ≥.50 is a medium effect, and ≥ .80 is a large effect. Similarly, a Cohens f of ≥.02 is a small effect size, ≥.15 is medium and ≥.35 is a large effect size.

CBT interventions

CBT as a standalone intervention was demonstrated in three of the included studies to result in improved outcomes for young offenders (Mitchell, et al., 2011; Ovaert et al., 2003, & Rohde et al., 2004). One of these studies, which was conducted by Mitchell et al. (2011), found that CBT reduced externalising problem behaviours in 40 male young offenders when assessed using the YSR questionnaire (Achenbach, 1991). Although a large effect size of -0.87 was obtained, the findings did not reach statistical significance. This may be attributed to the sample size, whereby effect size estimates are not as sensitive to the impact of sample sizing as significance values are. Therefore, the lack of statistical significance does not mean the intervention was ineffective. Rohde et al. (2004) in a slightly larger sample (n = 76) of male young offenders found engagement in group CBT resulted in significant improvements in externalizing behaviour problems assessed using the YSR (Achenbach, 1991) (p =.046). Similarly, Ovaert et al. (2003) found completion of 12 sessions of CBT group therapy significantly reduced self-reported PTSD symptoms in 45 adolescent male offenders. They found that engagement with group CBT significantly reduced trait (p = .01) and expressed anger (p = .01) in individuals who were identified to have experienced trauma events in relation to gang/community violence.

Only one included study explored the impact of TF-CBT on trauma symptoms in young offenders. In this study, Cohen et al. (2016) randomly assigned 81 young offenders (39 male, 42 female) detained in a residential treatment facility to either a group facilitated by a therapist who had received both web based TF-CBT training and consultation, or to a group facilitated by a therapist who had received both web based TF-CBT, plus a two day live TF-CBT workshop and twice monthly phone consultation. Using the UCLA-PTSD-RI as a measure of trauma symptoms, Cohen et al. (2016) found that TF-CBT significantly reduced self-reported trauma symptoms ($p<.001$). This finding was irrespective of therapist training type. In sum, CBT as a standalone intervention appears to be effective in reducing trauma symptomology in young offenders. Whilst TF-CBT includes techniques that specifically target trauma related thoughts, emotions, behaviours, and trauma memories, CBT that was not trauma focused was also found to reduce trauma symptomology. Common features of both therapy types include developing emotion regulation and cognitive restructuring skills. It is therefore possible that whilst processing the specific trauma memory can help in reducing trauma symptomology, other skills based approaches are as effective.

Manualised CBT interventions

CBT has been utilised by researchers in the development of manualised treatment programmes. Resick and Schnicke (1992) developed a manualised treatment for trauma called Cognitive Processing Therapy (CPT). This treatment consists of education about PTSD symptoms, exposure in the form of writing and reading about the experienced trauma and cognitive therapy where thoughts and affect are identified and challenged. CPT was utilised in one study included within this review. Ahrens and Rexford (2002) explored the effectiveness of CPT in reducing trauma symptoms in male young offenders (n = 38). Using measures specifically developed to measure trauma symptoms such as the PTSD Symptom Scale Self-Report, the authors found that compared to treatment as usual, those who engaged in eight 60

minute sessions of CPT displayed significant reductions in PTSD symptoms, which includes levels of arousal.

Aggression Replacement Training (ART) is another manualised treatment programme that is based on CBT. Two of the studies included within this review explored the effectiveness of ART on reducing aggression in young offenders (Glick & Goldstein, 1987; Erikson, 2013). ART is made up of three components: structured learning training (developing social skills, emotion regulation skills, and planning skills), anger control training (identifying triggers, cues, developing self-talk, and using self-evaluation) and moral education (raising understanding of fairness, justice, and the needs and rights of others). Within their paper, Glick and Goldstein (1987) report the findings from two separate studies. The first involved 60 male adolescents who were detained due to committing lower level crimes such as assault, burglary, and theft. The second, implementing the same methodology, contained 51 adolescent males detained for more violent offences. The findings revealed that ART was successful in reducing the number and intensity of behavioural incidents in young offenders with less violent crimes. A significant increase in prosocial behaviours was observed in those with more violent behaviours, but there was no significant difference in the number and intensity of aggressive behaviours. It was suggested that the environment may have impacted upon the results. Those with less violent crimes were housed in multi bed dormitories and therefore incident levels may have been higher, whereas those with more violent offences were detained in a more secure environment with single rooms and more sanctions and controls.

Erikson (2013) assessed the effectiveness of ART in reducing aggressive behaviour in female adolescents. They utilised a sample of 60 randomly sampled female adolescents detained in a residential juvenile justice facility in the USA (30 experimental group and 30 comparison). To assess this, the authors used a range of measures. The ones of relevance are the UCLA-PTSD-RI (to assess PTSD symptoms), the Achenbach Child Behaviour Checklist

(to assess diverse aspects of adaptive and maladaptive functioning in children) (Achenbach & Rescorla, 2001), and the behaviour incident report which was developed by Goldstein and Glick (1987) when developing ART. Despite mean scores of aggressive behaviours decreasing post treatment, the results from a 2x2 ANOVA revealed no significant mean differences between groups for aggressive behaviour in the classroom (p = .18) or out of the classroom (p = .80). However, a significant reduction in PTSD symptoms was found (p = .011).

Two other studies included within this review implemented CBT within a manualised treatment programme (Goldstein, et al., 2007; Goldstein et al., 2018). Both of which demonstrated successful outcomes through engagement with the CBT based intervention. Goldstein et al. (2007) adapted the Anger Coping Program (Lochman et al., 1999) to be appropriate for female young offenders. The adapted version was manualised into a treatment programme called Anger Management for Female Juvenile Offenders (AMFJO). In a small study containing 12 female young offenders detained in a juvenile justice facility in the USA, Goldstein et al. (2007) found that those randomly assigned to 18 sessions of AMFJO improved in terms of levels of anger and aggression, compared to those in the control condition. The findings were not significant but a large effect size was observed (f=1.93) in terms of anger levels. Interestingly, those in the control group worsened in terms of their levels of aggression, again this was not significant, but a large effect size was observed (f=2.05).

A larger scale study with female youth has explored the use of a manualised treatment programme, Juvenile Justice Anger Management (JJAM), in reducing aggression. In a randomised controlled trial with 57 female young offenders detained in a juvenile justice facility Goldstein et al. (2018) reported promising results when assessed using the NAS-PI (Novaco, 2003). When compared to a control group of individuals who completed treatment as usual, individuals who engaged in JJAM showed significant reductions in levels of anger, physical aggression, and relational aggression. Overall, research on group interventions based

upon CBT have demonstrated their effectiveness in reducing trauma symptomology including aggressive behaviours. Similarly to CBT when used as a standalone intervention, the skill development aspect of the group programmes appears to provide young people with the knowledge base needed to regulate and manage their trauma symptomology. It is not clear, however, if one specific skill is more effective than another or if an interplay of skills is what makes CBT interventions effective in reducing trauma symptomology.

DBT informed interventions

DBT is identified as an effective treatment for adult women who engage in self-destructive, impulsive, and aggressive behaviours, common symptomology following the experience of trauma. One study within this review utilised DBT with adolescent offenders (Shelton et al., 2009). Shelton et al. (2009) reported findings from individuals aged 16-59 in state run prisons in the USA. Individuals engaged in twice weekly sessions of DBT that were modified for correctional settings (DBT-CM). Specifically within the youth sample (n = 38), Shelton et al. (2009) found that those who engaged in DBT-CM improved significantly on the Buss and Perry Aggression Questionnaire – physical aggression domain compared to those randomly assigned to treatment as usual.

The effects of individual components of DBT, such as mindfulness on aggressive behaviour, have been explored with young offenders. Mindfulness provides individuals with the ability to become present in the here and now. Over time and with practice, the individual becomes increasingly aware of their own internal arousal states and provides them with the space to be able to implement cognitive strategies to manage the current symptomology that they are experiencing. Four studies included within this review have done so and each revealed positive outcomes (Bunford, 2016; Evans-Chase, 2015; Himelstein et al., 2015; Milani et al., 2013). Himelstein et al. (2015) explored the impact of mindfulness alongside psychotherapy in a sample of 27 adolescent male offenders in a juvenile detention camp in the USA. They found

a significant increase in staff ratings of positive behaviour and self-report self-esteem in those that completed the mindfulness sessions. No direct measure of trauma symptomology was included in this study, but the findings reveal the positive effect therapies focused on emotion regulation can have on externalising behaviour of adolescent offender populations. To increase the availability of mindfulness to individuals, the use of the internet as a method of delivery has been explored. Evans-Chase (2015) conducted a RCT using 60 male youths detained in a juvenile detention facility in the USA. Using a freely available internet based mindfulness meditation instruction, the author found that those who engaged in mindfulness meditation reported a better ability to control their behaviour and emotions, compared to the controls who engaged in guided relaxation.

Another study exploring the effectiveness of mindfulness in reducing externalising behaviours, especially aggression, has been conducted by Milani et al. (2013). In this study 22 adolescent males detained in a juvenile corrections centre were randomly assigned to a Mindfulness Based Cognitive Therapy (MBCT) group or treatment as usual. They found levels of aggression, measured using the Buss and Perry Aggression Questionnaire, significantly reduced post-test in those that completed eight sessions of MBCT compared with controls.

Another individual component of DBT that has been explored is interpersonal skills training. A manualised programme, Interpersonal Skills Group – Corrections Modified, was implemented by Bunford (2016) with a small sample of 12 male young offenders detained in a juvenile justice facility in the USA. A reduction in verbal rated aggression, aggression against property and self-rated anger was observed using the Buss and Perry Aggression Questionnaire (Buss & Perry, 1992) in those within the treatment group, relative to those in the no treatment group.

DBT as a standalone intervention modified for justice facilities demonstrated significant reductions in physical aggression. Mindfulness, a component of DBT when used in

isolation has been shown to have a positive effect on reducing trauma symptomology in young offenders. The interpersonal skills aspect of DBT has also been evidenced to reduce aggression. Similarly to CBT, the development of skills, as opposed to directly processing trauma memories appears to be an effective method of reducing trauma symptomology. Whilst the skills taught within DBT, such as emotion regulation, distress tolerance, and interpersonal effectiveness, differ from those in CBT, they still appear effective in reducing trauma symptoms in young offenders. Whether one skill is more effective than another is unclear. It is also possible that what works for one client to reduce trauma symptoms, may differ to another.

Hybrid interventions

This review found two studies that utilised mixed methods within their interventions, both including aspects of DBT within their methodology. One included an exploration of the effectiveness of mindfulness when combined with cognitive therapy (Umbach et al., 2018). Umbach et al. (2018) in a large sample of 197 detained male adolescent offenders found no difference between the treatment and control groups in terms of reduced levels of aggressive behaviour measured using the YSR questionnaire (Achenbach, 1991).

The other study that utilised a mixed methods approach was documented by Swart and Apsche (2014). This study utilised Mode Deactivation Therapy (MDT) and found successful outcomes. This therapy incorporates aspects of DBT as well as Acceptance and Commitment Therapy (ACT). It also includes a process known as Validation, Clarification and Redirection. Swart and Apsche (2014) conducted a study with 142 male adolescents in a court mandated residential treatment facility in the USA. They were randomly assigned to either MDT or treatment as usual (CBT). Using the STAXI-II (Spielberger, 1991), the Behaviour Rating Scale, and Compound Core Belief questionnaire, Swart and Apsche (2014) found that MDT was able to produce effect sizes 17 percentile points higher than CBT, with a 45% overall treatment change effect being achieved. The significant findings indicate MDT to be an

effective treatment for young offenders who display externalising behaviour problems such as violence and aggression.

This review included those studies with mixed methods within the category of hybrid interventions. One study found mindfulness and cognitive therapy to not be effective in reducing trauma symptomology (Umbhach et al., 2018), but another using MDT, a combination of ACT and DBT to be effective (Swart & Apsche, 2014). It is therefore important to consider the effectiveness of individual components of mixed methods approaches to therapy. Doing so in research makes it difficult to disentangle the most efficacious components of the intervention.

Other interventions

Other non-typical treatments have been explored in terms of their effectiveness in reducing aggressive behaviour in youth offenders. Four were included in this review (Armstrong, 2003; Hilyer et al., 1982; Raider et al., 2008; Clair-Michaud et al., 2016). One randomised controlled trial explored the use of Physical Fitness training and counselling with two groups of 30 randomly selected male young offenders in a school for detained young offenders. Within this, Hilyer et al. (1982) found, using the Profile of Mood States, (McNair et al., 1971) (which explores six transient affective states including anger-hostility), those who engaged in the one and a half hours of physical fitness and counselling significantly differed from controls in regard to levels of anger.

The use of sensory therapy has also been explored. Raider et al. (2008) conducted a study where 20 adolescent offenders (11 male, 9 female) detained in a juvenile detention centre in the USA were randomly assigned to the trauma intervention group The Structured Sensory Intervention for Traumatised Children Adolescents and Parents – Adjudicated and at Risk Youth (SITCAP-ART) or a waitlist control group. Both sensory and cognitive behavioural components were utilised. The premise of this intervention is that traumas are experienced at a

sensory level and by using a safe space these memories can be processed in a way that moderates the discomfort felt from reliving them. Once the emotional component of the memory is processed, activities implementing CBT enables the individual to develop adaptive coping strategies. Using the YSR (Achenbach, 1991) and the Trauma Symptom Checklist (Briere, 1996), Raider et al. (2008) found a significant reduction in rule breaking and aggressive behaviours.

Armstrong (2003) explored the impact that the environment has on the behaviour of young offenders in a county jail in the USA. A large sample of 256 youth were randomly assigned to a treatment unit (Youthful Offender Unit) or a control group (remained in the general population of the prison). The Youthful Offender Unit had a higher level of staffing and had therapeutic programmes available to the men. It was also compulsory to engage in Moral Reconation Therapy (MRT). Aggressive behaviour was measured using official records of disciplinary violations. These were coded into four categories: serious acts of aggression, serious rule violations, less serious acts of aggression, and minor disciplinary violations. Armstrong (2003) found a significant reduction in serious aggressive violations in those in the Youthful Offender Unit compared to the control group. The longer individuals spent on the unit was also significantly associated with decreased disciplinary violations.

Clair-Michaud et al. (2016) explored whether a 90 minute motivational interviewing session, as opposed to a specific treatment, delivered prior to a substance abuse treatment programme, could produce better outcomes in terms of reduced aggression, than 90 minutes of relaxation therapy (control). A total of 198 individuals were randomly assigned to either condition using a random numbers table. Using the Delinquent Activities Scale (DAS; Reavy et al., 2012), they identified that motivational interviewing was able to reduce predatory aggression.

The studies included under the category of other, reveal that a range of methods including sports, sensory therapy and changes to the custodial environment can all produce positive outcomes, specifically reduced anger, and aggression for young people in custody.

Table 3.4. Results summary table (*N* = 20)

Reference	Sample size and population	Intervention group	Control Group	Primary outcomes	Overall Quality Rating*	Trauma Informed Rating*
Ahrens and Rexford (2002)	38 Adolescent males, aged 15-18 (*M* = 16.4) incarcerated in youth facility for adolescent offenders.	Randomly assigned to Cognitive Processing Therapy (*n* = 19).	Wait list control (*n* = 19).	The ANOVA for the PTSD Symptom Scale-Self Report was found to be significant, *F* (1, 36) = 19.44, *p* <.001. The ANOVA for the Impact Event Scale measure was significant, *F* (1, 36) = 20.49, *p* <.001, as was the Beck Depression Inventory, *F* (1, 36) = 17.95, *p* = .002. Power estimated at *d* = .62.	4/10	3
Armstrong (2002)	256 male detention centre residents between January 1, 1997, and January 1, 1998. Aged 15-22 (*M* = 20).	Randomization allocation to youthful offender unit (YOU) (*n* = 129) using Moral Reconation therapy (MRT).	General population (*n* = 127).	Significant difference found between YOU and control group for serious aggressive violations (*p* = .13). All other measures of violations were non-significant. However, a significant effect of time in programme on the total disciplinary violations and serious aggressive violations received was found (*p* <.001). Large effect size (*f* =.126) for reduction in serious aggressive violations.	3/10	1
Bunford (2016)	12 detained male juvenile offender youth. Mean age 16.30 at the Perry Multi-County Juvenile Facility. A total of 24 were randomised to participate (*n* = 16) or not participate (*n* = 8), Then to treatment (*n* = 8) or to waitlist (*n* = 8). Six dropped out. Four from treatment group.	Interpersonal Skills Group – Corrections Modified (ISG-CM).	Waitlist control.	Decrease in self and staff rated verbal aggression, self-rated aggression against property, and self-rated anger was observed. Increased behaviour points. For staff-rated aggression against property, there was a large difference between groups pre-treatment and a medium-large difference between groups post-treatment. The treatment group exhibited more aggression pre-treatment and less aggression post-treatment. The repeated measures effect sizes for self-rated verbal aggression was large (*d* = .80), for staff-rated verbal aggression was small (*d* = .23), and for staff-rated aggression against property was medium (*d* = .44).	4/10	2

	A total of 12 completed all study procedures.					
Clair-Michaud et al. (2016)	Adolescents aged 14-19 from a juvenile correctional facility in the Northeast USA. A total of 189 completed the assessment (155 male), randomly assigned via a random numbers table to either Motivational interviewing or relaxation therapy.	Motivational interviewing (MI) (n = 99).	Relaxation therapy (RT) (n = 90).	Those who engaged in MI exhibited significantly less predatory aggression than those who received RT (p = .001).	4/10	1
Cohen et al. (2016)	Eighteen residential treatment facilities in three New England states participated in the project. Adolescents (39 male, 42 female) age 12-17 who were adjudicated but had not undertaken any evidence based trauma focused therapy. There were 617 youth who were screened, 91% screened positive for trauma experience. A total of 258 did not	TF-CBT web based.	TF-CBT Web based + live.	Youth who completed TF-CBT experienced statistically and clinically significant improvement in PTSD symptoms (t = 5.16, p <.001) regardless of condition. Measured on UCLA PTSD and Mood and Feelings questionnaire but dropout rates much lower for web based +Live group.	1/10	3

	participate in the study. There were 81 youth and parents/guardians who consented to participate in the study.					
Erickson (2013)	180 female juvenile offenders sentenced to the juvenile justice residential commitment programme in Florida sampled. There were 60 randomly allocated, 30 in the ART group and 30 in the comparison group. Age 15-18 (M = 16.85).	ART (n = 30).	TAU (n = 30).	No significant difference in rule breaking of aggressive behaviour between pre-post-test when compared to the control group. The results indicated a non-significant Time X Treatment Condition interaction for aggressive behaviour in the classroom (p = .38), for rule-breaking behaviour in the classroom (p = .65), and for aggressive behaviour outside of the classroom (p =.61).	2/10	3
Evans-Chase (2015)	Randomised controlled trial with 60 male youth, aged 16-22 sentenced to state custody in juvenile detention facility in New Jersey.	Internet based mindfulness meditation. .	Guided relaxation used as control intervention.	Experimental group identified in journals they were better able to control their behaviour and deal with emotions (54% v. 30%), a higher proportion identified they were able to use their skills outside of class (42% v. 5%), however, the guided relaxation were calmer out of class (65% v. 58%).	3/10	1
Glick and Goldstein (1987) (Study 1)	60 male adolescents in Annsville Youth Centre, males aged 14-17 who have committed crimes. Median age 15.	24 Random assignments to ART.	24 in control condition, treatment as usual at facility. There were 12 others in no treatment.	Significant changes on all outcomes. Reduced acting out incidents (f = 11.51, p < .001) and intensity of incidents (f = 9.34, p <.05).	4/10	1

Glick and Goldstein (1987) (Study 2)	51 male young people residence at Maccormick. Secure Centre aged 13-21 Median age 18. More aggressive and serious assaultive felonies.	Random assignment to ART.	Treatment As Usual.	Significant increase in social behaviours (f = 8.64, p <.01). Number and intensity of acting out behaviours did not significantly change.	4/10	1
Goldstein et al. (2007)	12 female juvenile offenders in a residential post adjudication justice facility. (14-18 years).	Anger Management for Female Juvenile Offenders – random assignment.	Treatment As Usual – standard facility treatment.	In terms of overall aggression, girls' scores in the treatment condition improved while girls' scores in the control condition worsened, but these results were not significant (F (1, 3) = 3.03, p = .18). However, a large effect size (f = 2.05) was found for changes in overall aggression from pre- to post-treatment for both conditions. On measures of physical aggression, girls in both the treatment and TAU control conditions worsened from pre- to post-treatment, but findings were not significant (F (1, 3) = .11, p = .76). On measures of indirect aggression (i.e., the best available approximation of relational aggression), girls in the treatment condition improved from pre- to post-treatment, and girls in the control condition worsened slightly, but these results were not statistically significant (F (1, 3) = 8.09, p = .07).	6/10	1
Goldstein et al. (2018)	Participants were 70 female youth who ranged in age from 14 to 20 years (M = 17.45, SD 1.24) and were placed at one of three participating juvenile justice facilities; 57 youth	Youth who were assigned to the JJAM condition participated in the JJAM treatment and also participated in all TAU	Treatment as usual.	Girls in the JJAM treatment condition exhibited lower levels of anger (p <.01), physical aggression (p <.01), and relational aggression (p <.01) as measured on the NAS-PI. At post-test covarying pre test scores—than did delinquent girls in the TAU control condition.	4/10	1

	completed the study and were included in analyses.	activities at the facilities.				
Hilyer et al. (1982)	Two groups of 30 randomly selected male students aged 15-18, in a state school for young offenders. A total of 150 were considered, 75 had at least 20 weeks remaining. A total of 23 completed the experimental group and 30 completed the control trial.	Systematic physical fitness programme delivered by counsellors for one and a half hours a day, three days a week for 20 weeks.	Treatment As Usual The complete rehabilitatio n treatment of the institution.	Significant difference found between experimental and control condition at post test for anger levels (p <.001).	3/10	1
Himelstein et al. (2015)	27 male incarcerated youth in a juvenile detention camp in the San Francisco Bay area. Age range 14-18 years, (M= 16.45).	Psychotherapy plus mindfulness meditation.	Treatment As Usual – psychothera py only.	There were significant differences found on the behavioural points data that were collected with experimental group scores (M pre = 51.5, M post = 55.7, M change = 3.27) showing increases, and the control group showing decreases overall (M pre = 63.7, M post = 59.7, M change = −3.23), t (34)= 2.361, p <.05).	3/10	1
Milani et al. (2013)	22 adolescent males in juvenile corrections and rehabilitation centre of Zahedan province during 1991-	10 subjects in the experimental group (MBCT) based on the scores of the pretest.	12 subjects assigned to control group, no training.	Significant difference found between control and experimental group at post-test. p < .01 on aggression, anger, hostility, and physical aggression subscale but no significant difference on the verbal aggression subscale. Effect size medium (d = 0.30) for aggression levels at follow up.	4/10	1

	1992. (Ages not provided).					
Mitchell et al. (2011)	40 male young offenders. Aged 13-18, (*M* = 15.58. randomised to CBT or TAU.	CBT.	Treatment as Usual (any individual interventions for emotional or mental health problems routinely offered).	The CBT group had a larger reduction in YSR External problem score at follow up than the TAU group, and this is supported by the large effect size (*d* = .87).	1/10	2
Ovaert et al. (2003)	Incarcerated juveniles in a North Texas Youth Corrections facility. 43 male adolescents ranging from 13 to 18 years of age (*M* = 15.4, SD = 1.1).	CBT for juvenile offenders with PTSD group (*n* = 43). A total of 43 randomly assigned adolescents completed pre- and post-treatment assessments.	Wait list control groups.	PTSD-RI scores were significantly lower at post assessment, (*t* (42) = 3.24, *p* = .01), with a mean change of 5.23 (*SD* = 10.59) in PTSD-RI score. No significant difference found between pre and post-test for STAXI-II scores. A one-way analysis of variance (ANOVA) evaluating offence totals at 3 months was significant and indicated that following admission to the facility, those who had completed the treatment group had similar numbers of incident reports (*M* = 6.17, *SD* = 5.03) to those juveniles who were not identified as having PTSD (*M* = 3.38, *SD* = 3.20). In contrast, those youth with PTSD who had not yet completed treatment had significantly more reports (M = 8.97, *SD* = 8.62), *F*(2, 46) = 3.13, *p* = .05, than the non-PTSD youth. However, at six months, there were no longer significant differences observed among the groups.	5/10	3

Raider et al. (2008)	The Multi-County Attention Center clinical staff-identified 20 youth (11 male, nine female) aged 15-18, with documented multiple trauma exposure were recruited to participate in the research study. Of the 23 research participants, 13 were randomly assigned to the treatment group and 10 assigned to the waitlist (control group).	Structured Sensory Intervention for Traumatized Children, Adolescents and Parents – Adjudicated and at Risk Youth [SITCAP-ART]), (*n* = 13).	Wait list control (*n* = 10).	Statistically significant reduction in trauma symptoms, depression, rule breaking, aggressive behaviours and mental health problems were reported. Data is not included in the study.	4/10	3
Rohde et al. (2004)	76 male adolescents aged 15-18 at Oak Creek youth correctional facility randomly assigned to Coping course (*n* = 46) or usual care (*n* = 30).	Coping Course intervention was the CWD-A course (Clarke et al., 1990).	Oak Creek Control Group. Usual care treatment.	Significant post-test difference found in YSR externalising scores between experimental and control group (p = .046). Significant difference found in improved self-esteem (p =.012) and CBT knowledge (p =.003).	3/10	1
Shelton et al. (2009)	38 adolescent males (mean age = 17.86) detained in a state run correctional facility in Connecticut. (Also 52 adult males and 34 adult females). Random assignment to	16 week DBT-CM skills group then eight week DBT coaching	16 week DBT-CM skills group then eight week case management	Significant change from baseline, (t = 3.72, p <.001) on the Buss and Perry Aggression Questionnaire (Buss & Perry, 1991) physical aggression scale.	4/10	1

	DBT coaching or case management condition					
Swart and Apsche (2014)	143 adolescent males aged 14-17 years. They were randomly assigned to the MDT treatment group or control group at a functional treatment clinic in Virginia.	Mode Deactivation Therapy.	CBT.	MDT outperformed CBT by a statistically significant margin across all measures. Effect sizes for MDT were on average 17 percentile points higher than the CBT effect sizes. Cohen *d* effect sizes MDT/CBT: STAXI-II: Anger in 1.84/0.80 Anger out 1.85/0.78 Anger exp index 1.86/0.79. Externalize 1.26/0.63 Total 1.79/0.62. Behaviour Rating Scale: 1.91/0.91.	2/10	3
Umbach et al. (2018)	268 sentenced male youth (mean age = 17.4 years) from large correctional facility in New York City. Randomly assigned to CBT/MT or TAU.	109 CBT/Mindfulness Training group.	88 control group (evidenced based cognitive perceptions intervention and sexual-risk reduction intervention) ..	The control group significantly declined from baseline on measures of cognitive control, $M = 0.24$, $SD = 0.14$, to follow-up, $M = 0.32$, $SD = 0.19$; $t(87) = -3.71$, $p < .001$, Cohen's $d = 0.41$. The treatment group demonstrated no significant difference in the scores for baseline, $M = 0.26$, $SD = 0.17$, and follow-up, $M = 0.29$, $SD = 0.19$, assessments; $t(108) = -1.14$, $p = .255$, Cohen's $d = 0.13$. A significant decline in emotion regulation scores for the control group performance from baseline, $M = 0.29$, $SD = 0.15$, to follow-up, $M = 0.37$, $SD = 0.33$, were found, Cohen's $d = 0.32$. However, in the treatment group, there was no significant decline from baseline, $M = 0.32$, $SD = 0.19$, to follow-up, $M = 0.33$, $SD = 0.22$; $t(108) = -0.43$, $p = .670$, Cohen's $d = 0.05$. CBT/MT can buffer against declines in emotion regulation caused by incarceration.	4/10	1

**Quality Score: the higher the quality score the higher the risk of bias. *Trauma Informed Rating: 3=highly trauma informed, 2=partially trauma informed, 1=low trauma informed*

Discussion

This systematic review aimed to investigate the effectiveness of trauma informed interventions in reducing levels of violence that young people display in custodial settings. The review generated 20 studies that measured the effectiveness of a trauma based intervention on reducing aggressive behaviour in custody. The outcome measure varied across studies, some specifically explored externalising behaviour, whereas some explored PTSD symptom reduction more broadly, but also captured anger or aggression levels. The majority (19/20) of the included studies reported results that demonstrate effectiveness of the intervention in reducing trauma symptoms in young offenders. Only two studies demonstrated a high level of methodological quality within their design, both were based on CBT. One of which was assessed as being highly trauma informed (Cohen et al., 2016) and the other was rated as being partially trauma informed (Mitchel et al., 2011). The other 17 studies reported a statistically significant difference in outcome measures, three reported large effect sizes and one reported a proportional increase in the outcome measure. A total of seven studies provided effect sizes, giving an overall large effect size (M = .85). Only one study included reported non-significant findings.

The review revealed that a range of treatment approaches were effective in reducing trauma symptomology in young offenders. Whilst this opens up a range of treatment options to individuals, it does raise questions in relation to the underlying processes within each approach that elicits the improvements that the studies have shown. It is possible that the skills taught on one intervention work well for one person, whereas those skills taught on another intervention work well for another. Individual learning styles may be responsible for these variations. It is also possible that the skills taught are not as important as the therapeutic alliance that is built with the treatment facilitator. Research has shown that a strong therapeutic alliance increases positive treatment outcomes (Conin et al., 2014; Ormhaugh et al., 2014). However, a

recent systematic review conducted by Baier et al. (2020) highlighted the need for further research in this area to be able to more precisely estimate the extent to which therapeutic alliance drives therapeutic change.

Methodological Considerations and Limitations of the Reviewed Studies

The quality of the included studies was mixed. Some studies presented with some concerns in relation to risk of bias, some were rated as low quality. Only two were identified as having a high level of quality. Aside from the quality of the reviewed studies, a number of factors were also considered relevant when assessing the validity of the study outcomes. These included the methods utilised to obtain the presented data. Common themes identified within the studies in relation to methodological considerations/limitations are discussed below.

A common component of the included studies was the group delivery element (n = 17). Although all but two studies (Erikson et al., 2013; Ovaert et al., 2003) found significant reductions in aggressive behaviour post intervention, the group element of these studies could mean that trauma was treated as a homogenous treatment need. Therefore, no individualisation of the trauma treatment was possible. It may be that bespoke trauma therapy that addresses the specific area of trauma in youth would yield more significant results. An individualised approach would enable the therapist to target the specific traumatic event/s that have contributed to the maladaptive trauma-related behaviours.

Potential individual therapies include NICE recommended evidenced based treatments such as EMDR and TF-CBT (Lewey et al., 2018). EMDR, as described by the founder of the intervention (Shapiro, 1995), is an attempt to shift information that is dysfunctionally locked in the nervous system with the overall aim of creating a more balanced system. The procedure requires the patient to recall memories of traumatic events whilst the brain is bilaterally stimulated, alternating from left to right hemispheres. This is commonly achieved by simultaneously moving the eyes from left to right, or hearing a beeping noise in the left and

then the right ear, though other sensory modalities that achieve bilateral brain stimulation are also used, such as pulsations delivered in the hands. The communication between the right and left hemispheres allow for traumatic events to be recalled when in a non-aroused state. Whilst the brain is bilaterally stimulated, the patient is first required to recall unpleasant memories and rate their vividness. The patient is then required to recall the same memory again but provide no rating (recall only). A break then takes place and upon return to the session, the memory is again recalled and again the vividness of the memory is then recalled. The rated vividness of the memory after this break is typically much lower than at the first recall (van den Hout & Engelhard, 2012). This desensitisation aspect of EMDR, along with the other seven phases (Shapiro, 1996) and the evidentiary support for its effectiveness has enabled EMDR to meet the criteria to be classed as an evidence based practice with NICE in 2005 (Diehle et al., 2015; Hensel, 2009; Mevissen et al., 2017; Scheck et al., 1998).

In a study conducted by Karadag et al (2020) the effectiveness of EMDR in reducing symptoms of PTSD in children aged 6-18 was examined. A mean number of 4.15 sessions were delivered. The authors found that trauma symptoms, as measured on the PTSD symptom scale, significantly reduced post intervention ($p < .001$).Although this sample was a community as opposed to an offending/custodial sample, it does highlight the potential effectiveness of individualised trauma treatments for youth in custodial settings.

TF-CBT is another evidence based practice that NICE recommend when treating trauma in children. The TF-CBT treatment protocol was developed by Cohen, Mannarino and Deblinger (2006). The therapy takes place between eight and 25 sessions and includes both the child and their parent/caregiver. The therapy implements techniques that assists the child to modify trauma related negative thoughts, emotions, and behaviours. The TF-CBT PRACTICE model is composed of three phases: stabilisation, trauma narration and processing and integration and consolidation. It includes parenting skills, relaxation skills, affect modulation

skills, cognitive processing skills, trauma narrative and processing and integration and consolidation. There is a wealth of evidentiary support for the effectiveness of TF-CBT in treating trauma in children (Cohen et al., 2010; Cohen et al., 2012; Jensen et al., 2018; Peters et al., 2021). A growing area of research has focused on transitional aged youth, those aged 15-25. Peters et al. (2021) explored the effectiveness of TF-CBT with 20 transitional aged youth in Australia. Although sample sizing is small, the effectiveness of TF-CBT in reducing self-report PTSD symptomatology was found to be high after 15 individual sessions (d = -.83). Interestingly, both EMDR and TF-CBT require the patient to recall and reprocess the traumatic memory. It is possible that the recall and reprocessing alone is sufficient to reduce trauma symptomology and the wider methodological processes of the therapy type are redundant. This may explain the findings from research that have found both TF-CBT and EMDR to be effective in treating trauma (Lewey et al., 2018). However, it is also possible that there are wider therapeutic processes taking place within each therapy type, including the quality of the therapeutic relationship, that are equally effective in producing positive outcomes for patients.

Although both TF-CBT and EMDR are shown to be effective in treating trauma (Lewey et al., 2018), the search conducted within this review did not yield any studies that have explored the effectiveness of EMDR in a RCT within custodial settings. Similarly, only one study implemented TF-CBT (Cohen et al., 2016).

Within this review, three studies were delivered on an individual basis. One was motivational interviewing, which may not be considered a full intervention. However, Claire-Michaud et al. (2016) found motivational interviewing, used as a precursor to intervention, resulted in significant reductions in predatory aggression post treatment in a sample of 181 adolescents. Himmelstein et al. (2015) similarly explored the effectiveness of mindfulness delivered alongside group psychotherapy in reducing behaviour problems. They found improvements in prosocial behaviour in custody in the adolescents who completed mindfulness

alongside psychotherapy, compared to psychotherapy alone. Cohen et al., (2016) also reported significant improvements on self-reported trauma symptomology in young offenders following eleven sessions of TF-CBT ($p<.001$). Although positive results have been observed in these individualised interventions, the cost effectiveness would need further exploration if such interventions were to be widely implemented.

In relation to effect sizes, only seven included studies reported the effect size of the intervention on the outcome variable (M=.85; Armstrong, 2002; Bunford, 2016; Goldstein et al., 2007, Goldstein et al., 2018; Milani et al., 2013; Mitchell et al., 2011; Swart & Apsche, 2014). One study did not report any outcome data (Raider et al., 2008) which contributed to there being some concerns when assigning a risk of bias rating. For those studies which did report effect sizes, the majority (n = 6) reported large effect sizes. It is unclear why such a low proportion of articles reported the effect sizes. It is possible that the low sample sizing, which was a common limitation observed in the included articles, contributed to this. There were 16 studies that had 81 or fewer participants. Although this raises concerns about the generalisability of these findings, three of the four studies with larger sample sizes did report a large effect size (Armstrong, 2002; Clair-Michaud, 2016; Swart & Apsche, 2014; Umbach et al., 2018).

Another common limitation noted within the reviewed articles was the lack of follow-up. Although the majority did conduct a follow-up assessment (n = 12) (time period ranging from two weeks to 12 months), eight did not. It is therefore not possible to conclude from the findings of these studies that the implemented interventions resulted in sustained improvements in aggressive behaviour in the youth who participated. Of the eight who did not conduct follow-up assessments, four were based on cognitive theory (Armstrong, 2002; Cohen et al., 2016; Goldstein et al., 2007; Swart & Apsche, 2014), two were based on mindfulness, one on social learning theory (Glick & Goldstein, 1987), and one on physical activity (Hilyer et al., 1982).

Further common limitations within the reviewed studies relate to the recruitment process. In six studies, participants were mandated to engage in the intervention, and therefore, motivation may have impacted on the results (Ahrens & Rexford, 2002; Armstrong 2002; Glick and Goldstein, 1987; Hilyer et al., 1982; Himmelstein et al., 2015; Swart & Apsche, 2014). In addition to this, only five studies utilised observational data (Armstrong, 2002; Bunford, 2016; Erickson 2013, Himmelstein et al., 2015; Oveart et al., 2003). Although concerns with the validity of recordings of aggressive behaviour by staff have been questioned, the sole reliance on self-report measures in the absence of blinding also calls into question the reliability of the responses. These concerns may be attributed to the difficulties noted in conducting research of this kind within custodial settings (Mitchel et al., 2011). Glick and Goldstein (1987) reflect upon the timing that group interventions take place within custodial settings. Within their study, the group was delivered at 7.30am due to operational needs of the environment. As adolescents are reported to need nine hours of sleep (Dahl, 1999), waking up early may have impacted on the youth's ability to learn information and therefore impacted on the findings of the study. Although this was the only study to comment on the time of delivery, it is a factor worth considering when contemplating designs for future research. Other difficulties identified when studying young offenders include the need to gain parental consent. This also reflects a wider challenge of engaging with the families of young people in custody (Mitchel et al., 2011). Security aspects also pose a challenge to research. Participants not being permitted to attend therapy due to recent incidents of violence, or if others in the group pose a risk to another participant, is an example of this. Furthermore, engaging with young people for follow-up data is also notably difficult (Chitsabsean et al., 2006) and may offer an explanation for the lack of follow-up in the reviewed studies.

Positively, a range of valid and reliable assessment tools were utilised in 19 of the reviewed studies. Of note, five utilised the Buss and Perry Aggression Questionnaire (Buss &

Perry, 1992) to measure changes in aggression. This scale has been validated with adolescents and is noted to have high levels of reliability, specifically, 0.94 for the sum of subscales of aggression (Fives et al., 2011), and appropriate levels of validity (Mohammadi, 2006). Two utilised the UCLA PTSD RI for the DSM-IV Adolescent version (Steinberg et al., 2004). This tool is noted to have high levels of reliability and validity and is standardised to this age group. Interestingly, only one study (Goldstein et al., 2018) utilised the NAS-PI (Novaco, 2003) as a measure of anger/aggression change. The use of journaling, although used by one of the reviewed studies (Evans-Chase, 2015), has not consistently been found to reduce aggressive behaviour in custody (Ellis, 2018).

The environment itself is also worth considering when exploring the findings of the reviewed studies. Glick and Goldstein (1987) discuss the impact of the level of security of the facility when comparing data from two groups. Those in more secure facilities may be exposed to less situations that may cause conflict and therefore impact behavioural data observations. Armstrong (2003) specifically set out to explore the impact of the environment on aggressive behaviour in young offenders. However, they note that MRT was also implemented on the unit they were investigating. It was therefore not possible to rule out that it was MRT that resulted in the positive behaviour change and not the changes made to the custodial environment.

Moreover, the majority of the reviewed studies were conducted within the USA (n = 18). The one study conducted in the UK (Mitchell et al., 2011) showed that CBT was able to reduce self-reported aggressive behaviour in youth within custodial establishments. Although limitations in regard to generalisability are noted, this study was one of the two studies identified as having high levels of methodological rigour. As identified, CBT was the most common intervention approach utilised in the reviewed studies. It is worth noting, however, that this may be due to the length of time that CBT approaches have been implemented within treatments for young offenders. Others such as DBT and MDT are relatively new in the

treatment of young offenders, which may explain the more limited pool of research into their effectiveness of treating trauma related violence and aggression in custodial settings.

Implications

The limited evidence base from UK custodial settings highlights the need for further research within the UK. This also identifies a limitation within this review, which is that the exclusion criteria may have been too restrictive and the inclusion of all trauma intervention studies in UK custodial settings should have been included for analysis. This may have yielded a more representative picture of the effectiveness of trauma based interventions in reducing aggressive behaviour in youth custodial settings in the UK. This should be the focus of further systematic literature reviews. In addition, broadening the search terms may have also yielded further studies. Specifically, the terms abuse and neglect should have been included in addition to those already included i.e. Trauma* OR Maltreatment*. This was an oversight on the author's behalf in this review. Furthermore, this review may be subject to publication bias. This is on the basis that all included studies were in published articles. Unpublished research may have been able to offer further insight into the effectiveness of trauma treatments in reducing custodial violence in young offenders.

Nonetheless, despite these limitations, this review implemented a systematic approach to ensure a comprehensive method was utilised to identify relevant studies. The review has helped to consolidate the current literature base around trauma informed interventions within youth custodial settings. It also draws attention to the need for custodial settings to understand trauma backgrounds of the youth they are working with, and to implement trauma informed interventions to help alleviate the violent and aggressive behaviour associated with trauma experience that is displayed in youth custody settings. It is only through understanding how trauma impacts on violence, and how trauma informed interventions mitigate these trauma-related behaviours, that effective trauma treatment interventions can be developed and utilised.

Dierkhising and Brandson (2016) note that a trauma informed system should offer routine screening for trauma experience and should refer those who positively screen for a more in depth trauma symptoms assessment and provide evidence-based trauma informed treatment. Further to this, Griffin et al. (2012) note the importance of staff within the youth justice system being educated and trained to better understand and respond to trauma related behaviour, such as aggression and violence. This approach is echoed by Rogers and Law (2010) who advocate for enhancing the skill set of those providing immediate care to young people. They also emphasise the importance of the criminal justice system, at all levels, understanding the systemic impact of childhood trauma. It is through this knowledge that trauma informed policy and practice can be embedded and the effects of trauma treated as early as possible.

Conclusion

This review yielded a total of 20 studies conducted in three countries (USA, UK, and Iran). All included studies were reviewed separately. A large number of duplicates were identified by the search terms, which indicates the search terms used were broad and ensured there was limited possibility for suitable studies being missed. Of the 20 studies that met the inclusion criteria, three were not specifically designed to explore the impact of the intervention on aggression, one did not identify any significant difference in the outcome measures, and one did not report the outcome data within the write up. Effect sizes were reported by seven of the included studies, an overall mean effect size of .85 was obtained. The quality of the included studies was also notably variable. Only two were identified as having an overall low level of bias, both of which utilised CBT to treat trauma symptoms. The majority had some concerns in relation to bias for reasons such as lack of clarity around the blinding of participants and assessors, limited information provided on attrition levels, and some concerns within the choice of measures given the lack of reported blinding.

Consequentially, this review identified that there is a clear gap in the literature base for high quality research focused on investigating the effectiveness of evidence based trauma-informed interventions in reducing aggressive behaviour within youth custody settings. There were very few reviewed studies conducted with a high level of methodological rigour that revealed significant reductions in aggressive behaviour. Despite the methodological limitations identified, the reviewed studies have cast light onto the range of trauma informed interventions that have been investigated to date. Most of which are shown to be effective in reducing trauma symptoms including aggressive and violent behaviour in young offenders in custodial settings.

Chapter 4

A Critique of the Novaco Anger Scale and Provocation Inventory

Abstract

The Novaco Anger Scale and Provocation Inventory (NAS-PI; Novaco 2003) is a psychometric assessment for the measurement of anger and its associated constructs. It explores anger related cognitions, behaviour, and arousal patterns, one's ability to regulate their anger, and also explores a range of situations that are likely to provoke an anger related response. The NAS-PI is widely used in both clinical and forensic settings. Although a critique of the previous version of the assessment (Novaco, 1994) has taken place (Mills et al., 1998), as yet, there has been no psychometric critique of the current version of the assessment (Novaco, 2003) in terms of its reliability and validity when used within forensic settings. This review found the NAS-PI to be a valid and reliable measure of anger when used in forensic settings, with particular strengths in aggression and violence prediction and assessment of inconsistent responding. Limitations, including its inability to account for instrumental use of aggression, have been explored. The findings of this review give rise to discussions around future research and practical implications.

Keywords: Novaco Anger Scale and Provocation Inventory, NAS-PI, anger, forensic, critique

Introduction

Anger is defined as a subjective emotional state or condition that is characterised by subjective feelings that range on a scale from mild annoyance to extreme rage or fury (Spielberger, 1999). Anger is argued to result from perceived injustice or antagonism (Izard, 1991; Novaco, 1975). It is a universal emotion that can be expressed in an adaptive manner where one is able to assert themselves in a way that communicates how they feel (Ferndandez, 2013). It also serves an adaptive function in regard to a survival mechanism (Novaco, 2003) as it can protect self-esteem, boost determination and energy levels for action. However, it is widely recognised to be a precursor in the development of aggression (Armstead & Clarke, 2002; Howells, 2004; Spielberger et al., 1983), especially in forensic populations (McNeil et al., 2003; Monahan et al., 2001; Novaco, 1994; Wang & Diamond, 1999) including incarcerated youth (Cornell et al., 1999). Difficulties in one's ability to recognise, cope and understand the context in which anger occurs can lead to harmful behaviours, due to limited ability to effectively problem solve. Such behaviours include self-harm and violence towards others (Loza & Loza-Fanous, 1999). Novaco (2013) also notes how anger and its associated levels of intensity drive violent offending.

Violent offending is a clear public health problem (Krug et al., 2002), with estimated costs of violence at £69 million per year to NHS service staff. McDermott et al. (2008) argue for the importance of predicting violence, not only for safe release into the community, but to help identify those most at risk of engaging in aggression during the time that they are in institutions. This has been emphasised by other research which note the importance of the Historical Clinical and Risk Management version 20 (HCR-20) in predicting institutional violence (Edens et al., 2005; Lyon et al., 2001; Shah 1978) with some evidence provided in support of such utility (Belfrage et al., 2000; Dernevik et al., 2002; Doyle et al., 2002). Others

have noted the importance of such measures in assessing factors that can be addressed through intervention such as anger (Douglas & Skeem, 2005).

Given the rise of reports of institutional violence within prisons in the UK, 15% increase between 2018-2019 (MOJ, 2019), the importance of an accurate measure of violence and its associated mediating variables, with an ability to make treatment recommendations, is essential (Lindqvist et al., 2004; Novaco, 1994; O'Neill, 1995). The NAS-PI has been argued to adequately do so given its multidimensional definition of anger (Novaco, 2003). The NAS-PI is one of two widely used scales to measure anger in clinical and research settings, with the State Trait Anger Expression Inventory Version-II (STAXI-II; Spielberger, 1999) being the other. However, unlike the STAXI-II no psychometric critique has been conducted on the NAS-PI to explore its validity and reliability when used within forensic settings.

Aims

This chapter aimed to explore the use of the NAS-PI within forensic settings. It initially provides an overview of the measure and describes the subscales used within it. The psychometric properties of the assessment are explored. Following this, the paper discusses the implications of the findings, any limitations, and makes recommendations for further research.

Overview of the NAS-PI

In 1979, Novaco developed a model of anger management which led to the development of a two part 48 item self-report instrument, the Novaco Anger Scale (Novaco, 1994). Novaco explored various aspects of anger, noting specifically the physiological arousal patterns, cognitions and expressed aggression. The scale measures each of these concepts. Novaco (2003) expanded the scale to examine an individual's ability to regulate their emotions. In addition to this, the original part B of the scale was re-termed as the Provocation Index (PI). The PI was designed to explore a range of situations that one's anger may be provoked by and

explore the intensity of such anger. These new developments led to the creation of the current version of the scale, the NAS-PI (Novaco, 2003).

The NAS-PI is a two part, 85 item self-report measure of anger. The NAS component has 60 items and the PI contains an additional 25 items to measure anger intensity in relation to situations that provoke anger. The scale was developed for research, assessing anger in mentally disordered respondents and also for use as outcome evaluation. The NAS contains a three point Likert scale from never true, sometimes true to always true. It contains four subscales, for four different dimensions of anger: cognitive, arousal, behaviour and anger regulation. Within each subscale, they are further divided into content areas.

The cognitive subscale is argued to be essential as Novaco (2003) claimed that anger only derives from our perceptions and interpretations of an external event. The cognitive appraisal of information and the information that is attended to, is determined by the personal experiences we have and the meanings we attribute to those experiences. There are 16 items on the scale that explore anger provoking thoughts. These items are further broken into justification (feeling as if they have been wronged in some way and therefore their anger is justified), rumination (preoccupation with the experiences that have provoked anger), suspiciousness (heightened sensitivity to potential threat or mistreatment from other people), and hostile attitude (where one is inclined to see other's actions and intentions in a negative light).

The arousal subscale explores the intensity and duration of anger experiences and also explores levels of muscle tension and irritability that one experiences when angry. Novaco (2003) notes how high levels of arousal may be symbolic of trauma experience and therefore recommend histories of individuals be explored if this is found to be the case. Prolonged physical reactions associated with anger have health implications.

The behavioural subscale explores an individual's impulsive reactions, likelihood of engaging in verbal and physical aggression, and also the likelihood that an individual takes their anger out on others around them who may not be the direct source of the provocation (indirect expansion). The importance of using this subscale as a treatment outcome measure is highlighted by research.. Through implementing interventions with those with high levels of behavioural aggression positive results have been shown in reduced rearrests for violent crime (Hughes, 1995), lowered violent recidivism (Dowden et al., 1999), reduced violent incidents (Jones & Hollin, 2004), and reduced physical assaults in a hospital setting (Novaco & Taylor, 2013).

The anger regulation subscale explores an individual's level of control over their anger experiences. It explores cognitive coping, behavioural control and arousal calming. High scores on this scale reflect the use of effective anger regulation skills and it is the aim of many interventions to increase one's ability in this area. Novaco (2003) stresses the importance of the interpreters to be mindful of ones motivations to present themselves in a positive light as they therefore may score highly on this scale.

The PI aspect requires participants to score either "not at all angry", "a little angry", "fairly angry" and "very angry" to a list of potential provocative situations. Five content areas are explored; disrespectful treatment, (ego-threat/mockery/demeaning criticism) unfair treatment (bullying, discrimination, manipulation or false accusation), frustration (not being able to achieve something immediately), and annoying traits in others. The author advises both the NAS and PI scales be administered at the same time. Research has shown the PI aspect (Novaco, 2003) has independent validation (Grisso et al., 2000; Gudjonsson & Sigurdsson, 2007; Mills et al., 1998).

Each subscale total has an associated T score which is used to identify the range that the individual scores within for each subscale; the range categories are: very low, low, low

average, average, high average, high and very high. Those in the high range are suggested to have difficulties with anger regulation. Those in the very high range are likely to experience a level of distress and should be considered for intervention. Very high scores, and very low scores, which may reflect a defensive approach to responding, should be further explored with the individual. The NAS-PI contains a measure for inconsistent responding, this is something that the STAXI-II (Spielberger, 1999) does not possess. There are eight item pairs on the NAS that are highly correlated in the US standardised sample. Differences of more than one point in these items suggest that there is inconsistent responding on the test.

The authors note the importance of using this assessment in conjunction with other measures such as observational data, clinical interview, and measures of physical arousal. This is noted due to the subjective nature of anger (Novaco, 2003). They also discuss how anger can be reactive and therefore caution needs to be taken when viewing the results in isolation. They suggest the measure be conducted on more than one occasion and consideration given to the context in which the assessment is delivered. For example, if there is a belief that the outcomes may result in negative consequences, such as negative reports or longer time in detention, scores may not reflect the true experience of anger. Novaco (2003) notes the potential difficulties with anger assessment in forensic and custodial settings. He notes the tendency of those in custody to mask their anger due to perceived losses by disclosing or showing it. This tends to lead to measurement reactivity, as a result of an individual's inferences about the meaning and potential consequences of the assessment outcome. This caution is based on research conducted in Canada that examined anger as a predictor of violent recidivism among offenders (Loza & Loza-Fanous, 1999). In addition, Novaco (2003) reported how those with anger difficulties are often suspicious and distrustful of others, meaning anger testers may receive a guarded response in the assessment process, and often have limited abilities in self-monitoring/self-awareness of emotions. For others, anger serves as a protective function for

ones self-esteem and self-worth, therefore, they are guarded in their responses with fear of losing power (Goffman, 1961).

Normative Data

The NAS-PI's normative data was collected from a sample of 1546 individuals aged 9-94 within the USA. Two norms were provided for those aged nine to 18 and for 19 and older. The assessment was developed with normal and clinical samples, namely those with mental health problems. Therefore, the scale was developed with the aim of being simple and clear, with no more than two pieces of information appearing in one item. The descriptive data was presented within the NAS-PI manual (Novaco, 2003). The sample of youth attended public schools and the adults were from community settings, senior centres, public school faculties and religious organisations. Males, those with lower levels of education were underreported within the sample. Despite these sampling issues, the author and developer of the scale has reported it to have good internal consistency, construct validity, predictive validity, and test-retest reliability (Novaco, 2003).

Use of the NAS-PI with Forensic Populations

Despite the NAS-PIs normative data pertaining to that of normal and mental health populations, the measure has since been used in a range of forensic settings, often used as an assessment and outcome measure. The NAS-PI has been widely used in research conducted within forensic inpatient settings and has been validated for use with forensic patients with learning disabilities (Novaco & Taylor, 2004). Some research has focused on the use of the NAS-PI in predicting anger within forensic inpatient settings, others have used the scale as intended by the author to measure treatment outcomes (Novaco, 2003).

McDermott et al. (2008) found reactive aggression in a forensic inpatient setting to be most associated with levels of anger as measured on the NAS-PI, with Area Under Curve (AUC) values of .73 recorded. This study draws attention to the differing types of aggression;

instrumental and reactive (McEllistrem, 2004). Reactive being more emotionally driven aggression and instrumental aggression, which is more purposeful, controlled, and unemotional (Crick & Dodge, 1996). The NAS-PI and the Novaco's anger model (Novaco, 1975) of anger tends to focus on how high levels of anger can contribute to reactive aggression and how interventions can help to reduce the negative behavioural, physical, and cognitive attributes of anger. The scale was not designed or intended to be used as a measure of varying types of aggressive behaviour. However, many studies and anger management interventions use the NAS-PI as an outcome measure when exploring anger related aggressive/violent behaviour (Novaco, 2011). When used in this way, the scale has proved effective in measuring treatment outcomes (Landenberger & Lipsey, 2005; Downden & Andrews, 2000).

Although the use and effectiveness of anger management programmes have been questioned by researchers (Blackburn, 2004; Howells, 1989; Heseltine et al., 2010; Hornsvled et al., 2011; McGuire, 2008; Polaschek, 2004; Watt & Howells, 1999), Novaco and Taylor (2014) conducted a study of 50 forensic hospital patients with intellectual disabilities and demonstrated positive outcomes on measures including the NAS-PI. They found that after 18 twice weekly individual sessions of anger treatment, anger levels declined and physical assaults on others reduced by more than half, six months post treatment. Given that staff wellbeing, staff turnover levels and overall costs to services are affected by violence within institutions (Novaco & Taylor, 2013), this study emphasises the need to address anger. However, no comparison control group was used in this study as it was a service evaluation and was limited in terms of sample size.

On the whole, anger management programmes that have used the NAS-PI as an outcome measure, have been widely studied and showed significant reduction in anger levels and anger related behaviour (Tew et al., 2012). Ireland (2004) and Jones and Hollin (2004) have found group programmes to be effective in reducing angry behaviour, angry thoughts,

and feelings. Those with the highest risk of violence were found to show the most improvement which is in line with Andrews' (2012) risk principle. Hornsveld et al. (2014) studied the effects of Aggression Replacement Training (ART) on a group of 123 Dutch young men, aged 16-21. These individuals had been ordered by the court to engage in this programme in a forensic outpatient clinic. Significant decreases in physical aggression were found post intervention (p = .016). The programme, based on the theory that anger forms from a combination of both physiological arousal and the cognitive appraisal of negative events, was developed by Goldstein, Glick & Gibbs (1998). The study showed significant increases in anger in the waiting period for the programme and reduced physiological anger post programme (p = .058). Attrition rates in this study using ART was low. In this study 61 out of 123 did not complete.

Similarly, Hatcher et al. (2010) note how 13 individuals dropped out of a course that commenced with 53 individuals. Fishbein et al. (2009) also found offenders who scored more highly in terms of reactive aggression and risk taking behaviours were more likely to drop out of intervention programmes. A more recent study conducted by Klein-Tuente et al (2020) also evidenced problems with attrition rates in intervention studies. Klein-Tuente et al (2020) explored the utility of a Virtual Reality Aggression Prevention Therapy (VRAPT) in reducing aggressive behaviour in psychiatric inpatients. Within this study, levels of aggression were measured with the Dutch version of the NAS-PI (Hornsveld et al., 2011). Both self-report and observational data revealed that the VRAPT did not result in reduced levels of aggression. Whilst staff reported data did not indicate improved outcomes, self-report data displayed an improvement but not to a level of statistical significance (p =.17). Similarly to other intervention studies, the attrition rate in this study was low with 20% of patients not completing the treatment. This is noteworthy since non-completion of intervention has been associated with heightened risk of recidivism (Wormith et al., 2007).

The ongoing need for interventions to target violent behaviour displayed by youth in custody is emphasised by research conducted by Kelly et al. (2019). In a sample of 373 detained adolescent males, the cognitive, arousal and behaviour subscales of the NAS-PI (Novaco, 2003) were used to measure levels of anger. The results revealed that those with high levels of anger displayed higher levels of violent behaviour in custody. The behavioural subscale score was found to predict violent behaviour in custody at one month (p <.001). This finding indicates that anger related within this sample was not caused by ruminative and suspicious preoccupation, instead it was more reactive quick tempered aggression. The authors draw attention for the need for anger treatment within youth custody facilities to reduce levels of violence and the need to ensure interventions are appropriately tailored to the needs of high risk youth.

Limited intervention studies have been conducted with female offender participants (Fitzharding, 1997; Wilfley et al., 1986). One study that has, conducted by Goldstein et al. (2007), on female young offenders, showed a large effect size (f=2.05) in reduced anger and aggression using the Buss and Perry Aggression Questionnaire (Buss & Perry, 1994) after a nine week anger management group. Goldstein later explored the effectiveness of a Juvenile Justice Anger Management programme on 57 female juvenile offenders and found successful outcomes on the NAS-PI (p<.01) (Goldstein, 2018). ART has also shown to be effective in reducing violence in young male offenders (Borduin et al., 1995; McGuire & Clark, 2004). However, in a study conducted by Currie et al. (2012), reduced aggression reports from the participants did not coincide with reports from their justice workers. Others have shown programmes to be effective in violent recidivism reduction but found no reduction in institutional incidents (Dowden & Serin, 2001).

Various lines of research offer an explanation for the lack of effectiveness of anger management interventions in reducing violence in institutions. Many focus on the environment

in which the intervention is being delivered. In particular, prison environments have been argued to trigger internal trauma responses in individuals, due to threat perceptions being heightened. These responses can lead to increased arousal and aggression. Other environmental factors within a prison serve to further exacerbate this, restrictions of movement and the presence of authority figures are examples of this (Ardino, 2011; Owens et al., 2008). Anger has been shown to increase in frequency the longer the time spent in prison (Zamble & Porporino, 1990) and has been argued to be a stable feature of long term imprisonment (Botna & Gendreau, 1990). Studies conducted on individuals in solitary confinement and in maximum security prisons have shown that these individuals have intense anger and hostility levels, along with high levels of anger ruminations (Haney, 2003; Arrigo & Bullock, 2008). Similarly, Michie and Cooke (2006) found anger to be the strongest predictor of violence without a weapon in a Scottish prison. For decades forensic settings, in particular prisons, have been highlighted to be an ideal environment for anger provocation (Goffman, 1961; Levey & Howells, 1991; Novaco, 1994). The environmental design, restrictiveness, staffing levels and overcrowding are adverse cues that could trigger anger in well-adjusted individuals (Novaco, 2013). The UK prison system is documented to fall victim to this, with the UK prison population estimated to continue to rise by 3,200 by 2023 (MOJ, 2018).

In addition, for many with severe anger problems, there is a reluctance to change behaviours that have served a function for them for many years and continue to do so in institutions (Novaco, 2011). The protection of low self-esteem is argued by some to be the primary goal of aggressive behaviour (Walker & Bright, 2009), and therefore their desire to change such behaviour may be limited unless there are clear rewards for pro-social behaviour. Novaco's (2007) systems theory explains this perspective. Treatment readiness has also been argued to be the underlying issue in these cases, as opposed to being treatment resistant (Howells & Day, 2003). Others note underlying motives to impact on treatment outcomes such

as desire to obtain parole, the intervention being part of treatment planning or a license requirement (McEwan et al., 2009; Novaco, 1997). The costs of anger and commitment to engage must be recognised before successful treatment can commence, highlighting the need for motivational interviewing as a precursor for effective treatment engagement (Miller & Rollnick, 2002). Each of these issues highlight the important note from Novaco (2003) to not use the NAS-PI in isolation as a measure of anger and aggressive behaviour.

Furthermore, anger can also be representative of trauma, especially amongst female prisoners (Archer & Haigh, 1997), which also coincides with self-harm and suicide (Chapman & Dixon-Gordon, 2007; Milligan & Andrews, 2005). Therefore, studies that have not found positive outcomes from anger management interventions may indicate that the intervention facilitators are not appropriately assessing and formulating an individual's needs (Howells et al., 1997), in this case, prior trauma. Research conducted by McCallum (2018) showed that in 110 male prisoners in England, those who have experienced symptoms of PTSD were likely to engage in violence in custody. The NAS-PI was not developed to account for the role that anger serves in trauma responses, particularly that in symptoms of PTSD. Trauma related anger is theorised to serve as a function in response to a threat (The Survival Model Theory of PTSD; Chemtob et al., 1998) and as an avoidance strategy for unwanted thoughts and of pity from others (The Fear Avoidance Theory of PTSD; Riggs et al., 1992). However, the NAS (Novaco, 1994) scores have been shown to correlate to measures of anger related PTSD symptoms on the Mississippi PTSD scale (Novaco & Chemtob, 2002). In a study of 123 war veterans, Novaco and Chemtob (2002) found the total NAS score was found to significantly correlate with Anger/Aggression Index (r=.82). Within this study, the STAXI-II Anger Expression In subscale was found to significantly correlate with scores on the ARO subscale (r=.71) which is to be expected. This study reveals that the Novaco Anger Scales are able to assess anger that stems from traumatic experiences. This highlights the need for trauma informed principles

within the prison service (Miller & Najavits, 2012), especially when anger management interventions that use the NAS-PI as an outcome measure are implemented.

Psychometric Properties

Reliability

Internal Consistency. There are two types of psychometric reliability: internal reliability or consistency, and test-retest reliability. The internal consistency of a psychometric measure is the extent to which the items are correlated to the concept that is being measured, and how the items relate to each other (Janda, 1994). Scores over 0.60 reflect good internal consistency (Field, 2000). Measures such as Cronbachs Alpha (Cronbach, 1951) explore the relationships between the individual items on the scale. Within the standardised sample, the NAS-PI (Novaco, 2003), as with the previous version of the NAS (Novaco, 1994), was shown to have good internal consistency (.82 for the COG subscale; .89 for the BEH subscale; .84 for the ARO subscale; and .76 for the REG subscale). The overall internal consistency value for the total NAS score was .94. The total PI value had an internal consistency estimate of .95, with subscales within this ranging from .73-.84. Novaco (2003) reports similar alpha values for nine to 11 year olds and also between clinical and non-clinical samples. In a study using 1101 psychiatric patients in three cities (Kansas City, Worcester, MA and Pittsburgh) the following internal consistency estimates were identified; COG=.81, BEH=.94, ARO=.89, NAS=.94 and PI=.92.

Internal consistency estimates for the NAS-PI have also been explored in a range of other settings. Culhane and Morera (2010), in a study of 257 US Hispanic and 246 US non-Hispanic white undergraduate students, showed that the NAS items demonstrate adequate internal consistency. However, for the PI scores, there was limited evidence of incept variance between the ethnic groups. Despite this, they concluded on the whole that the measure was valid for using on Hispanic samples. They found the NAS internal consistency to be over .70.

They found that the younger participants had increased PI scores. It should be noted that this study did not use a Spanish version of the scale, or consult in the participant's ability to read English language. Other researchers have demonstrated its appropriate use within other languages such as German (Kehn et al., 2014), where both the NAS and PI were shown to have good internal consistency with co-efficient alphas at .89 and .87 respectively and demonstrated convergent and discriminant validity.

The NAS-PI and its previous versions have been widely used in research conducted within forensic inpatient settings and has been validated for use with forensic patients with learning disabilities (Novaco & Taylor, 2004). In this population, the scale was found to have good internal consistency; .94 for the NAS and .95 for the PI, and good test-retest reliability (r = .86). Mills et al. (1998) demonstrated the NAS and the PI (Novaco, 1994) to have good internal consistency (.95 and .96) and test retest reliability (.89 and .85) in a population of 102 violent offenders. Similar findings have been obtained by Baker et al. (2008) in a large scale study of 638 male and 349 female incarcerated offenders, where the NAS and PI (Novaco, 1994) were found to have good internal consistency (.93 and .92 for men and .89 and .87 for females). Additional support has been reported by Lindqvist et al. (2004) who conducted a study of 95 male violent prisoners (age range 18-65). They demonstrated good internal reliability and consistent instrascale relationships of the Swedish version of the NAS (Novaco, 1994) in this population. The adapted scale showed to have high internal consistency with Cronbach Alphas over .70 for each of the dimensions of the scale (COG=.70, ARO=.81 BEH=.80 and REG=.76). Within this sample they found age to correlate with anger levels and destructive behaviour. However, this study failed to use an objective measure of anger such as incident data or staff observational ratings.

Test-retest reliability. Another form of reliability is test-retest reliability. Test re-test reliability refers to one sample being tested with the same measure on two separate occasions

and the scores being correlated. The standard error of the test is measured (Kline, 1986). The recommended level for test-retest reliability for psychometric assessments is a correlation of 0.70 (Kline, 1986). A small subgroup of individuals from the standardised sample were used by Novaco (2003) to assess this (n = 27). The test re-test was completed two weeks later and the majority of the subscales were found to have adequate test-retest reliability (ARO=.78; BEH=.81, REG=.72; NAS=.76 and PI=.82). The COG subscale was found to have a low test-retest reliability value of .47. Novaco (2003) proposes this be due to sampling errors as in the previous version, where a retest was conducted within a California state hospital, test-retest reliability levels for the COG subscale were .74. Further research using the previous version of the NAS-PI (Novaco, 1994) with a male prison sample in Canada showed the COG subscale to have a test-retest estimate of .82 (Mills et al., 1998). In addition to this, within forensic inpatient settings with those with learning disabilities, Novaco and Taylor (2004) report a good test-retest reliability of the NAS-PI (r= .86). In all, the NAS-PI appears to have good test-retest reliability in clinical, prison and non-clinical populations.

Validity

Validity refers to whether a test assesses what it sets out to measure. A test is defined as an operational form of a theoretical term or concept (Novaco, 2003). There are various forms of validity, such as face validity, construct validity, content validity and predictive validity (Foster & Cone, 1995; Western & Rosenthal, 2003).

Face Validity. Face validity refers to whether the measure appears to assess what it sets out to test. It is evident from reviewing the manual that the NAS-PI is designed to assess anger and its relevant constructs (Novaco, 2003). The scale was designed following the development of Novaco's model of anger and related programme for anger treatment (Novaco, 1975). The author notes the purpose of the assessment is to assess and track treatment progress following anger intervention and a range of studies have effectively shown the NAS-PI

(Novaco, 2003) and its previous versions' ability to do so (Borduin et al., 1995; Goldstein et al., 2007; Jones & Hollin, 2004; McGuire & Clark, 2004; Novaco & Taylor, 2013; Tew et al., 2012). However, due to variations in outcomes, researchers have highlighted the importance of assessing desirable responding especially in custodial environments when used with offenders (Novaco & Taylor, 2004). Novaco (2003) also discusses the potential for anger ratings on the scale to increase post intervention. He proposes that this be the case due to gained insight into ones anger, a skill that many with anger regulation difficulties are argued to lack (Novaco, 2003).

Predictive Validity. Predictive validity measures the extent to which the outcomes of the measure can be used to make future predictions about the explored behaviour. Novaco (2003) argues that the NAS-PI should indicate that those who score highly on this, should also be more likely to have displayed aggressive behaviour in the past or be more likely to act aggressively or violently in the future. Similarly, anger, as measured on the NAS-PI should reduce following intervention focused on anger management (Novaco, 2003). Novaco (1994) reports the NAS (Novaco, 1994) to be predictive of state anger, (STAXI-II: Spielberger, 1999) at a two week, one month and two month follow up. He reports it to be predictive of self-report anger on other assessments. Ramm and Novaco (2002) found similar results in a forensic hospital, particularly in those with a violent conviction (r=.34). The total NAS score correlated with critical incidents (r=.26) and assaults (r=.23). Similar findings were obtained in a sample of developmentally disabled male offenders (Novaco & Taylor, 2002). The previous version of NAS-PI (NAS; Novaco, 1994) has also shown to be significantly related to violent thoughts within those in forensic hospitals (Grisso et al., 2002) and in violent recidivism (Monahan, et al., 2001). The scale has been shown to predict the association between anger and violence in patients within hospital settings (e.g. Doyle & Dolan, 2006; Doyle et al., 2012; McNeil et al., 2003; Monahan et al., 2001; Novaco & Taylor, 2004; Swogger et al., 2012; Ullrich et al., 2014).

It is well established within research that anger levels are associated with physical aggression before, during and after admission to a forensic hospital (Doyle et al., 2012; McNeil et al., 2003; Novaco, 1994; Novaco & Taylor, 2004). Other versions of the previous version of NAS-PI, (NAS, Novaco, 1994) have not been as successful in demonstrating the predictive validity of the measure. The Swedish (Lindqvist et al., 2003) Danish (Moeller et al., 2015) and Dutch version (Hornsveld et al., 2011) showed that there was a lack of predictive invariance in their translated version of the NAS (Novaco, 1994), this is argued to be due to cultural differences in anger, aggression and provocation. In Sweden, they argue that it is culturally unacceptable to express anger despite feeling enraged. This is also argued to explain the differences in expressed anger in the German compared to the US sample (Kehn et al., 2014). Caution is therefore needed when using the NAS-PI in other cultures and consideration should be given to further research with the NAS-PI using more culturally relevant aspects of anger and aggression.

Construct Validity. Construct validity is the extent to which the scale measures what is sets out to measure. It can be further explored in subcategories. Discriminant validity measures whether constructs that should not be related are not related and convergent validity is a measure of whether those constructs that should be associated are in fact associated. Culhane and Morera (2010), in a study of 257 US Hispanic and 246 US non-Hispanic white undergraduate students, showed that the NAS-PI (Novaco, 2003) had a strong convergent validity with the STAXI-II. Similarly, Baker et al. (2008), in a large scale study of 638 male and 349 female incarcerated offenders, found the NAS and PI to have satisfactory convergent validity (.69). Using the data from the normative sample, Novaco (2003) conducted a factor analysis. Three factors were identified for the NAS component and five for the PI component of the scale (Novaco, 2003). Such loadings further reflect the construct validity of the NAS-PI, however, there is no further research to support these conclusions.

Content Validity. Content validity is a measure of the extent to which the scale or subscales measure all constructs of the area being explored. In relation to anger, Novaco (2003) notes that it should also correlate with aggression and hostility measures. A range of studies using the previous version of the NAS (Novaco, 1994), as opposed to the more recent NAS-PI (Novaco, 2003), found the scale to substantially correlate with other measures of anger and hostility. Novaco (1994) reported strong correlations between the NAS and the Buss-Durkee Hostility Inventory (*r*=.78) and the trait anger scale on the STAXI-II (*r*=.84), but less so with the Barratt Impulsivity scale (Barratt, 1959). Mills et al., (1998), in a sample of 112 patients from a high security hospital in Scotland, found the NAS to correlate with the trait anger (*r*=.75), anger in (*r*=.55), anger out (*r*=.68) and total anger expression (*r*=.73) on the STAXI-II (Spielberger, 1999). State anger did not correlate with the NAS (*r*=.20). The PI aspect was also found to correlate with trait anger (*r*=.54). Staff ratings were also provided for this sample and correlations were found between hostility and the total NAS score using the Psychotic Inpatient Profile (Lorr & Vestre, 1969).

The NAS (Novaco, 1994) scores have also been shown to correlate to measures of anger related PTSD symptoms on the Mississippi PTSD scale. In a study of 123 war veterans, Novaco and Chemtob (2002) found that the total NAS was correlated with the Anger/Aggression index (*r*=.82). Within this study, the STAXI-II Anger Expression In subscale was found to significantly correlate with scores on the ARO subscale (*r*=.71), which is to be expected. This study reveals that the NAS (Novaco, 1994) is able to assess anger that stems from traumatic experiences. This, as previously noted, is an essential consideration in relation to forensic populations, given the traumatic nature of the prison environment (Ardino, 2011; Owens et al., 2008).

Similar findings have been obtained by a range of studies with a range of populations that have correlated subscales on the NAS (Novaco, 1994) with the subscales on the STAXI-

II and/or the Buss and Perry Aggression Questionnaire; for example, forensic psychiatric inpatients (Ramm & Novaco, 2002), developmentally disabled inpatients (Novaco & Taylor (2002), convicted homicide inmates, adult male sex offenders on parole in the USA (Williams et al., 1996) and violent offenders in Canada (Mills et al., 1998). Furthermore, Lindqvist et al. (2004) conducted a study of 95 male violent prisoners (age range 18-65) and demonstrated adequate construct validity of the Swedish version of the NAS-PI (Novaco, 2003) in this population. The adapted scale showed the cognitive and arousal scale to correlate with cognitive distortion levels of hostility on the Buss and Perry Aggression Questionnaire (Buss & Perry, 1992), and internal anger correlated with Anger Expression In on the STAXI-II (Spielberger, 1999). Overall, it appears that the NAS-PI corresponds well to other scales of anger. BEH scores related strongly to measures of physical aggression (r=.73) (Buss & Warren, 2003). The COG subscale corresponds to measures of hostility (r=.62). The ARO subscale corresponds to measures of internalised anger and as predicted, the REG subscale has a negative relationship with measures of expressed anger (r=-.36) (Buss & Warren, 2003).

Despite these positive findings, when correlated with other measures of aggression, such as the Attitudes Towards Guns and Violence Questionnaire (Shapiro, 2000), correlations on measures of excitement and power did not exceed .34 (r=.34 and r=.22). This highlights the need to consider the motivational aspect/the function of aggressive behaviour in those being assessed (Kingsbury et al., 1997). Houston and Stanford (2006) note how treatment for aggression is not as effective for instrumental aggression when compared to other forms of aggression. Given that instrumental aggression is a trait found in life course persistent offenders, it is essential that interventions aiming to reduce aggression and violence take this into consideration. Those who display instrumental aggression may score lower on the NAS-PI and therefore consideration should be given for the use of an alternative assessment. Novaco (2003) however notes the intrinsic theoretical differences in attitudes to violence and anger and

proposes the differences occur for this reason. This is supported by a range of other research which highlight the differences in the underlying mechanisms behind instrumental and reactive aggression, (Blair et al., 2005; Cornell et al., 1996; Raine et al., 1998).

Discussion

This psychometric critique aimed to explore the use of the NAS-PI within forensic settings. It aimed to explore the psychometric properties of the measure and examine its utility when applied to forensic populations. The research explored within this review supports the use of the NAS-PI in a range of forensic settings with a range of populations and reveals that the NAS-PI has good levels of reliability and validity when used with this population. Given the rise in institutional violence within the UK (MOJ, 2019), a specific focus within this chapter has been on the ability of the NAS-PI to predict violence within institutions.

Findings

A range of key findings have been identified within this chapter. One is that scores on the NAS-PI are associated with levels of reactive aggression in forensic inpatient populations. (McDermott et al., 2008). Another is that the NAS-PI is able to assess the ability of anger management treatment to reduce levels of anger (Hornsveld et al., 2014; Klein-Tuente et al., 2021; Novaco and Taylor, 2014, Tew et al., 2012). Whilst the reviewed literature reveals the NAS-PI to be a valid and reliable measure of anger and aggression, findings in relation to the predictive validity of the measure are particularly noteworthy. Studies have shown scores on the NAS-PI to correlate with assaults in a forensic psychiatric hospital (Ramm & Novaco, 2002) as well as with violent thoughts and recidivism (Monahan et al., 2001). The predictive ability of the measure has also been demonstrated in other cultures including within Sweden (Linqvist et al., 2003), the Netherlands (Hornsveld et al., 2011) and in Denmark (Moeller et al., 2015).

Implications

The findings of this chapter have the potential to contribute to some significant clinical developments within forensic settings. As discussed within this chapter, given the predictive validity of the measure, the use of the NAS-PI in forensic settings could be used to identify those most at risk of engaging in violent and aggressive behaviour in custodial/institutional settings. Recent research conducted by Kelly et al. (2019) reveals the ability of the behaviour subscale on the NAS-PI to predict incidents of custodial violence when applied to male young offenders. The use of this assessment in initial stages of admission to custody/institution may be beneficial given its established ability to predict future aggression/violence. Identifying those most at risk could enable the implementation of early interventions/risk management strategies to reduce levels of violence within institutions and within the prison estate. This has implications for the overall safety such establishments. Creating a safer work environment can help to reduce staff turnover, meaning staffing is more consistent and trauma informed systems of care have the potential to be effective in assisting in the treatment of people, including youth within the justice system.

Limitations

A number of limitations of the NAS-PI have been identified in this review. These include its lack of predictive validity when used in other cultures. This is particularly poignant when working with individuals that are not from a country where the NAS-PI has been validated. Given the limited data from female forensic populations, it is also important to consider its validity when applied to this population. The length of time needed to complete all 85 items on the scale is also worth considering. It is possible adolescents or individuals with difficulties in attending to and concentrating for extended periods of time may struggle to complete the assessment in one sitting as intended. This may have implications for its utility when used with such individuals. Another limitation of the measure is its inability to

assess/predict aggression/violence that results from instrumental, as opposed to reactive aggression. For this reason, as identified by the author of the measure (Novaco, 2003), it is advised that the NAS-PI should not be used in isolation. It is noteworthy that the NAS-PI was developed to measure constructs of anger (not instrumental violence) and to be used as an outcome measure for treatment and therefore its use should be within this context. The reviewed research supports the utility of the NAS-PI when used in this specific context. An important factor to consider when interpreting the research findings that have focused on the validity and reliability of the measure is that most of the research has been conducted by the author of the scale. This lack of blinding within the research may have led to assessment bias, whereby the positive findings may have been overreported and less favourable outcomes under reported.

Furthermore, within this critique, a number of considerations that should be made when using the NAS-PI have been discussed. These include potential biases in responding, the potential for an increase in anger score to occur post intervention, and the role of the prison environment in reinforcing anger constructs. Additionally, responsivity factors such as motivation and poor attention span, should also be considered when implementing the tool. This is to avoid partial completion of the assessment.

Future research

Future research is needed to establish the NAS-PI's ability to be successfully used to predict violence within forensic settings. Given that violence within forensic settings can also be instrumental in nature, research would assist to determine whether wider use of the NAS-PI in forensic settings is a cost effective tool that could assist in reducing institutional violence. If found to be effective in identifying those individuals most at risk of engaging in violence within custody, preventative measures could be implemented. The long term cost-benefit analysis of using the NAS-PI as a screening tool could then be established. However, the issues with the

NAS-PI that have been identified in this review should be considered when developing such research. Potential under reporting amongst offenders and the reasons for this would need to be considered, alongside the use of observational and incident data.

Conclusion

This critique of the NAS-PI (Novaco, 2003) has revealed the measure to be a valid and reliable anger assessment tool when applied to forensic populations. The strengths and limitations of the tool have been explored within this chapter. The findings from research that has used the NAS-PI as an outcome measure have shown its utility in predicting anger/aggression related outcomes. Further research into the cost-effectiveness of using the NAS-PI as a screening tool within forensic settings is needed. It is through research of this kind that the justice system can be assisted to make evidence based/informed decisions when exploring avenues to reduce levels of institutional violence.

Chapter 5

The Effectiveness of a Cognitive Behavioural Group Intervention in Reducing Levels of Anger and Aggression in Young Offenders: A Case Study

Abstract

This case study evaluates the effectiveness of cognitive behavioural therapy delivered in a group intervention in reducing levels of anger and aggression in a young offender detained in a custodial establishment. Client A was a 16 year old male, identified as BAME, with an offending history that included wounding with intent, possession of a knife or bladed article, acquiring a firearm without certificate and burglary of dwelling and theft. Client A was diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) and was assessed as having cognitive abilities in the borderline range. He also had a history of childhood maltreatment in the form of exposure to domestic violence. The association between childhood maltreatment and early behavioural problems within this case are explored. This case study also reports on the literature base surrounding the impact of ADHD and its associated behavioural constructs on academic achievement, peer rejection, anti-social peer affiliation and offending behaviour. A range of theoretical models offer an explanation for the development of Client A's offending behaviour, which is captured within a CBT psychological formulation. Client A engaged in a cognitive behavioural group intervention. This case study highlights the complexities that can present when working with young offenders with a complex history including neurodevelopmental disorders and childhood maltreatment. The effectiveness of the intervention was assessed using the NAS-PI (Novaco, 2003). The results within this revealed that the CBT group intervention did not result in significant change in levels of anger or aggression as measured on the NAS-PI. Potential explanations for these findings are explored. Implications and further recommendations are discussed.

Keywords: CBT, case study, anger, NAS-PI, young offender

Introduction

This case study details the assessment, formulation, and treatment intervention for a 16 year old male who served a Detention Training Order within a Secure Training Centre for the offence of wounding with intent and possession of a bladed article. The treatment that is detailed was part of the clients recommended treatment within custody. It has been written up for the requirements of the Doctorate in Forensic Psychology. The work that was conducted with the client was fully supervised by a Registered Forensic Psychologist. The details of the work were also shared with the client's parents and members of the multi-disciplinary team including Youth Offending Team members and Case Managers. The client provided fully informed consent for the intervention work to be written as a case study. A copy of the consent form has been included (see Appendix D).

The work that is detailed within this case study was completed by the author. This includes initial assessments, the formulation, risk assessment and group interventions. Details from case notes and produced reports were used to construct this case study. The client has been referred to in this case study as Client A. This is for the purpose of maintaining confidentiality.

Background to knife crime, group offending and learning disability

This section aims to explore the prevalence of knife crime amongst young people and the risk factors that precipitate weapon possession and subsequent use in violent group offences.

Research into group crime and the role of peer influence on violent behaviour is extensive (Carrington, 2009; Lantz & Ruback, 2017) with affiliation with delinquent peers being a well-established risk factor for delinquency and violence in youth (Farrington, 2003). Research has demonstrated that aggressive adolescents tend to associate with other aggressive adolescents. These antisocial affiliations have been identified to increase levels of risk for

future violence, overall delinquent behaviour, and have the potential to increase severity of violent behaviour (McGloin & Piquero, 2009). In addition to this, gang affiliation or membership is associated with more serious and violent offences including weapon use (Lantz, 2018). It is argued that the presence of other offending peers allows others to engage in acts of violence that they would not have otherwise engaged in (McGloin & Thomas, 2016; McPhail, 1991; Warr 2002). Mechanisms behind such behaviour include increased anonymity within groups (Diener, 1977; Granovetter, 1978; Warr, 2002) and diffusion of responsibility (Darley & Latane, 1968; Gardiner & Steinberg, 2005; Wallach et al., 1964). A social learning perspective also notes the role of modeling, learned norms and behavioral reinforcement in increasing the risk of violent re-offending (Akers, 1998) with studies demonstrating an increased likelihood of violent re-offending, and non-violent reoffending when in the presence of offending peers (Cohen 1955; Conway & McCord 2002; McGloin & Piquero, 2009; Patterson, 1982, 1995; Piquero et al., 2003; Sutherland 1947; Warr, 2002).

Other potential mechanisms behind the link between deviant peer association and violent offending include the role of violence supportive attitudes. Association with deviant peers who are likely to hold similar violent supportive attitudes is known to increase a young person's risk of engaging in peer on peer violence, weapon carrying and use (Begue et al., 2016). Other potential mechanisms include the role of observation and habituation to violence, for example, research conducted in the USA emphasises the role that exposure to community violence has on subsequent violence including gang affiliation and weapon possession (Forster et al., 2015; Spano et al., 2012).

Weapon possession and use, as in the case of Client A, is a growing problem within youth custody in the UK (Ministry of Justice, 2019). In the UK, 4500 knife offences were committed by children in 2018. This was a 7% increase from the previous year (Ministry of Justice, 2019), with the majority noting this to be for their own protection (Brennan, 2018;

Ministry of Justice, 2019). Prior victimisation and increasing tensions between rival groups of youth is noted to have been a clear precipitating factor for Client A's index offence. This is discussed later in this report.

Some theories have explored precipitants for deviant peer association, with research indicating a link between peer rejection in early childhood and subsequent association with deviant peers in adolescence, (Chen, et al., 2016; Coie & Miller-Johnson, 2001; Patterson et al., 1989). Several processes are thought to bring about the link between early peer rejection and subsequent deviant peer association and its relation to violent offending. One of which is that of conduct problems, such as aggressive behaviour and poor self-control (Parker & Asher, 1987). Parker and Asher (1987) identified that conduct problems in childhood can result in the child being rejected by pro-social peers (Parker & Asher, 1987). This then reduces the chance of the disruptive child developing appropriate social skills, which can result in fewer adaptive responses to peer conflict and the perpetuation of aggressive behaviour (Synder et al., 2003). This social learning perspective explains how rejected children form relationships with other rejected children, and together disruptive behaviour is modeled and reinforced (Cairns et al., 1988). In adolescence, the rejected peer is argued to form alliances with peers who hold similar deviant attitudes. Although various trajectories from early peer rejection to subsequent deviant peer affiliation in adulthood have been suggested, (Elliott et al., 1985; Laird et al., 2001; Patterson et al., 1989) few fail to account for the role that learning difficulties play in the process of forming alliances with deviant peers. Chen et al. (2016), however, in their proposed Conceptual Model of Peer Rejection, do consider some individual differences; noting how impulsivity traits, including those associated with ADHD may increase a rejected child's susceptibility to coercion from deviant peer influence.

Shelton (2006) explored the role that coercion from deviant peers has on individuals with learning disabilities. They note how poor school achievement and subsequent peer

rejection, like that identified in the Chen et al. (2016) Conceptual Model of Peer Delinquency, can increase the risk of a child with learning disabilities associating with deviant peers. Learning disabilities are common amongst young people in custody. It is reported that 33% are diagnosed with a learning disability (Ministry of Justice, 2017). Hawkins et al. (2000) note that children who are at risk of school failures often have specific educational needs or learning disabilities, and consequently are at an increased risk of violent behaviors (Matta-Oshima et al., 2010; Sum et al., 2009; Wang et al., 2005) and violent recidivism (Katsiyannis & Archwamety, 1997). These findings identify young people with learning disabilities as a population with a heightened vulnerability to deviant peer coercion and criminal exploitation.

These theories, models and research offered explanations for Client A's offending behaviour and wider aggressive behaviour. They also helped to inform and guide the treatment of Client A.

Overview of Case: Client Introduction

Client A. Client A was a 16 year old male who served a Detention Training Order (DTO). Client A was documented to have been diagnosed with ADHD at the age of four. Client A has since been assessed for, and was documented to have, additional learning needs. His Education Health Care Plan (EHCP) documented outcomes from an ABAS-3 assessment (Harrison & Oakland, 2003) which showed extreme deficits in adaptive functioning which impacted on his ability to develop skills for adulthood, understand others' perspectives and contributed to difficulties in forming relationships. Whilst in custody, a Speech and Language assessment took place and revealed Client A had severe difficulties in expressive and receptive language, which could further impact on his ability to form relationships, socialise and engage in education.

Client A was remanded and subsequently sentenced for wounding with intent and possession of a knife blade or sharply pointed article. Client A had two previous offences. His

first offence was for acquiring a firearm without a certificate. Client A's second offence was burglary. The details of the offence are that a peer went to meet Client Aand he was taken in a car to a property. After looking around the area for houses to steal from, Client A was asked to climb through the window and open the door. Client A was then taken home and received a small amount of money for his involvement. Client A is reported to have been assaulted prior to this to ensure he complied. He had been seen on CCTV being pushed around by a group of older peers.

Client A's index offence was wounding with intent and two counts of possession of an article with a blade/sharply pointed article on school premises. The offence details are that Client A witnessed the victim being aggressive towards his female peer. Client A is documented to have exchanged verbal insults with him, before pulling out a knife from his backpack and stabbing the victim.. Client A recalled running into town and then returning home. The next day Client A returned to school with the backpack and was again in possession of the weapon he had used the previous day. Client A reported to have not given much consideration to the previous day's events and continued to carry the weapon for his own protection due to ongoing post-code affiliation issues.

Whilst in custody, Client A was involved in some violent incidents with peers, some of which were group assaults, and he was also found to be in possession of an improvised weapon. Despite this, Client A demonstrated an ability to comply with set rules and boundaries, to engage in intervention, to build some appropriate peer relationships and to form relationships with staff. Client A consistently showed dedication to engage in education and continued to engage on a full-time basis. Client A managed to reach the top of the incentive scheme and gained a place on the enhanced unit as a peer mentor. He also secured a work placement in the centre's kitchen. However, Client A's behaviour was reported to have deteriorated when on the enhanced unit. He appeared to have again been influenced by peers and engaged in bullying

behaviour. He was then moved into the main population and decided to stop his work placement. This appears to have impacted negatively on Client A's mood and behaviour. Client A then became involved in further violent incidents, which again appeared to be fueled by peer influence and a desire to fit in with his peer group. One of these incidents resulted in a police referral as the victim required hospital treatment. There were times where he has been named as a perpetrator on an interaction log due to negative interactions towards other peers. A unit move was decided, and he presented as more settled in terms of his behaviour following this move. Whilst in custody, the role of peer influence on Client A's use of violence continued to be apparent.

Method

Assessment

Client History. Client A was born and raised in an inner city area by both his parents. His parents are documented to be elderly.. He was the middle child; his older brother, notably a generation older than him, was noted to be a positive influence and he has a younger sister. Client A was reported to have had a difficult time in school from a young age. He was diagnosed with ADHD at an early age and later cognitive tests revealed an executive functioning level in the extremely low range. Concerns have also been noted around Client A's ability to process spoken language, with a significant delay in language and communication skills noted. File information notes he presented with disruptive behaviour from a young age. Client A was reported to have not formed friendship groups in school and at times was bullied. Although there was no documentation identifying Client A to have experienced childhood maltreatment, concerns had been raised about him being exposed to domestic violence within the home resulting in him staying with other family members.

As noted, Client A had difficulties in schooling. In his early adolescence he began associating with older peers who also displayed behavioural difficulties. Client A's risk

behaviours continued through his adolescence and became involved in offending. Further to this, whilst in custody, Client A continued to exhibit risk behaviours including weapon making and engaging in group physical assaults on others.

Referral

As part of Client A's admission process, he completed a range of assessments with various departments, including the Strengths and Difficulties Questionnaire (Goodman, 1997) with the author. Following this assessment process, a multi-disciplinary case formulation meeting was held and chaired by the author. Within this meeting, Client A's case was discussed. His behaviour was discussed in terms of formulation, and treatment/intervention targets were identified based on the formulation of the key problem behaviours. Client A's EHCP had been received and it was identified that no neurocognitive assessment had been completed with him in a number of years, and a more up to date assessment of cognitive abilities was deemed appropriate. He was therefore referred for a Wechsler Abbreviated Scale of Intelligence version two assessment (WASI-II; Wechsler, 2011). The rationale for this, as opposed to the Wechsler Intelligence Scale for Children (WISC-V; Wechsler, 2014), was the duration it takes to complete the assessment. Client A had a diagnosis of ADHD and therefore, it was deemed more appropriate to conduct the WASI-II. Client A's cognitive abilities were identified to be in the borderline range. Intervention targets were set out for all disciplines including education and the substance misuse team. Key targets were identified regarding Client A's offending behaviour and management of his emotions. He was subsequently referred to the Life Minus Violence-Enhanced programme (Ireland, 2008) and two other group interventions based on cognitive behaviour therapy. Materials were adapted to suit his learning needs. As part of Client A's resettlement plan, it was also recommended within supervision that a Structured Assessment of Violence Risk in Youth (SAVRY; Borum et al., 2006) be completed with clear recommendations for risk reduction strategies in the community to be

identified. This was completed and shared in a community-based meeting as part of Client A's licence agreement meeting.

Case Study Aim

The aim of the cognitive behavioral therapy group intervention detailed within this case study was to reduce levels of anger and aggression displayed by Client A.

Psychometric Assessment

From the file review, it appeared that Client A's behaviour within the index offence was triggered by a range of factors. Firstly, as Client A was carrying a weapon it is possible that he was experiencing feelings of anxiety due to concerns for his own safety within the community. Secondly, upon seeing conflict with a peer, Client A became angry, removed the knife from his bag and acted aggressively, initially with words, but then used the weapon on the victim. This shows a level of difficulty in regulating his emotions, in particular anger. For this reason, it was deemed appropriate for Client A to be referred for interventions that explore his use of violence and aggressive behaviour, contributing factors to his use of violence, and intervention that explore skills to be able to better regulate his anger arousal levels. Prior to commencing the group intervention, Client A completed an assessment to examine his current levels of anger and ability to regulate this anger.

NAS-PI. To assess Client A's levels of anger and aggression, the Novaco Anger Scale and Provocation Inventory (NAS-PI; Novaco, 2003) was completed with him. This is a 85-item scale that explores an individual's level of anger, a known risk factor for violent behaviour (Wang & Diamond, 1999). It explores an individual's experience of angry cognitions, the physical intensity levels of anger when in an aroused state, and how these factors contribute to aggressive behaviour. This scale also explores an individual's ability to control and regulate their anger. Outcomes from this scale can help to guide treatment recommendations and areas of need for an individual.

Client A's scores for total anger were in the very high range. Broken down into subgroups, Client A scored in the high range for both angry cognitions and angry arousal and in the very high range for aggressive behaviour. His anger regulation score was in the low range, suggesting Client A had a limited range of skills to regulate his high levels of angry cognitions, physical sensations, and aggressive behaviour. Based on these findings and MDT discussions around the role of peer influence in Client A's possession and use of weapons in violent offences, the Life Minus Violence-Enhanced programme (Ireland, 2008) (module 1), the Handling Difficult Feelings group (The Change Companies, 2013) and the What Got Me Here group (The Change Companies, 2013) were identified as appropriate interventions for Client A. It was discussed that these interventions would enhance Client A's motivation to change his use of violence. They were also identified as interventions that could help him to develop the skills needed to explore his anger levels, develop some anger regulation skills, and develop insight into the link between this, his peers, and his offending behaviour.

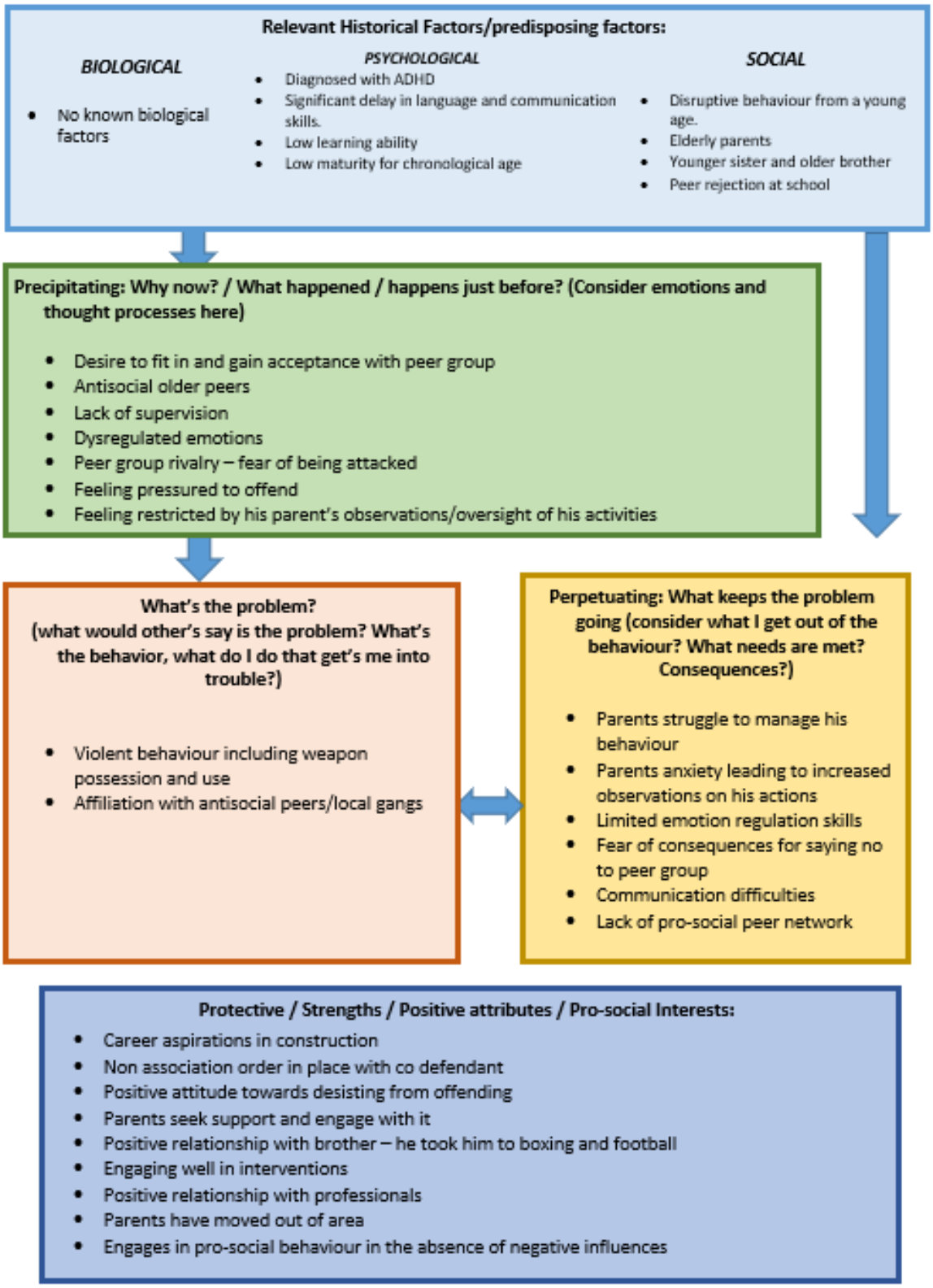
Formulation

The 5 p's model (Weeraskera, 1996) is a CBT case conceptualisation that has been used to explain the key difficulties that Client A presents, how they came to be and what keeps these problems going (see figure 5.1 for a diagrammatical overview). This formulation model was chosen as it provides a clear and holistic conceptualisation of a client's presenting problems. It is particularly useful when exploring complex cases with multiple presenting problems. This model of formulation has five key areas:

- The presenting problems (what is the risk behaviour)
- The predisposing factors (factors that made the individual vulnerable to the problem)
- The precipitating factors (factors that trigger the problem)
- The perpetuating factors (factors that serve to maintain the problem)

- The protective factors (strengths that serve to mitigate the risk of the behaviour occurring or reduce the severity of the problem)

Figure 5.1 A Visual Representation of Client A's Formulation.



It appeared that Client A's disruptive experiences as a child **predisposed** him to the difficulties that he presented with. Although specifics were unclear, it does appear that Client A was exposed to a chaotic and unstable child rearing environment, characterised by domestic violence and out of home placements with other relatives. This unpredictable environment and an absence of modelling of adaptive emotion regulation skills, appeared to have contributed to Client A experiencing a state of emotional turmoil which presented in disruptive and aggressive behaviour. These behavioural displays manifested in a way that was deemed conducive with ADHD. These behaviours impacted on Client A's ability to engage meaningfully within a school environment and appears to have exacerbated cognitive deficits that Client A presents with.

Client A's difficulties in school appear to have **precipitated** his involvement with peers who presented with similar behavioural difficulties. He sought acceptance from those similar to him due to experiencing bullying and rejection from those who were able to effectively engage within school. It is through his involvement with such peers and his difficulties in understanding social situations, including those where his cognitive vulnerabilities are exploited, that have precipitated Client A's involvement with offending behaviours. Key **problem** behaviours identified within his offending include weapon possession, deficits in emotion regulation, specifically anger, and difficulties within consequential thinking. His offending reveals a propensity to comply with the demands of those older than him in order to gain a sense of acceptance from others as he failed to achieve this at home and in school.

Client A's skill deficits in emotion regulation, his underdeveloped ability to think ahead and explore the consequences of his actions, limited social skills, desire for acceptance and difficulties in processing spoken word appeared to **perpetuate** his problem behaviours. Client A's cognitive deficits led to him struggling to think through situations and scenarios. Coupled with social skills deficits, Client A struggled to identify situations where he is at risk or where

others are taking advantage of him. He was eager to be liked and accepted by others and this desire often impounded on his ability to apply consequential thinking and problem solving skills. Further to this, Client A, having learnt from a young age that violence and aggression is an acceptable method of displaying emotions, continued to utilise aggression when experiencing emotional distress. Without developing skills in each of these areas, Client A's problem behaviours were likely to be repeated in the future.

In order to attempt to break this perpetuating cycle of offending, it was essential that Client A was supported to explore and enhance his individual strengths (Ward & Steward, 2003). Key strengths, or **protective** factors, that will help to moderate Client A's risk of further offending include the support he received from his family. Despite the problems he was exposed to as a child, Client A's family consistently continued to request and accept support to manage his behaviour in the community. They also moved area to help keep Client A safe upon his return to the community. Parental support has been evidenced to moderate against the impact of peer influence on violent offending in other youth (Hoeve et al., 2012; Lin et al., 2018). Client A is known and has displayed an ability to commit to and engage in interventions, including those that focus on offending behaviour. He was able to form positive relationships with professionals and Client A has previously demonstrated an ability to engage in pro-social activities when pro-offending peers are not present. Client A's family involvement and his willingness to engage in intervention were recommended to be incorporated into future intervention planning. It is through these avenues of support that he would derive the best chance of a successful offence free future.

Treatment Intervention

Design. A single subject experimental design was implemented in this case study. Post intervention anger data obtained after completion of cognitive behaviour group therapy was compared to pre intervention anger data.

Preliminary hypothesis. It was hypothesised that Client A's levels of anger would reduce following engagement in the described cognitive behavioural group interventions.

Theoretical Background to Treatment and Links with Formulation

Client A's history, assessment, and subsequent formulation, identified that cognitive and social deficits, along with difficulties in regulating extreme emotions, gave rise to the aggressive behaviour that Client A demonstrated, namely violent attacks on others. Other behaviours such as weapon possession and suicide attempts were also explained by these contributing factors. Based on the needs identified in Client A's formulation, a CBT based intervention was considered appropriate to use. This approach would enable Client A to develop skills in challenging cognitive distortions that escalate his anger arousal levels. It would enable Client A to learn skills to help regulate anger arousal levels and would encourage him to reflect upon his use of violence when angry in order to explore alternative responses. Client A was initially referred to Module 1 of the Life Minus Violence – Enhanced programme (Ireland, 2008). This introductory group module explores an individual's motivation to change their current use of aggression and helps to boost motivation through exploring individual competencies and enhancing self–efficacy. These factors are shown to be important for successful behaviour change (Ryan & Deci, 2000). This module and the subsequent two group interventions that Client A engaged in were based upon the Trans-Theoretical Model of behaviour change (Prochaska & DiClementes, 1982), also known as the Stages of Change Model, which acknowledges an individual's fluctuation in motivation to change presenting behaviours. Throughout the interventions, Motivational Interviewing approaches were used (Miller & Rollnick, 2002) to help enhance motivation and readiness to change aggressive behaviour. Module 1 of Life Minus Violence-Enhanced also seeks to explore and enhance the individual's recognition of their resiliency and their own personal strengths. This, as a precursor to intervention, has been shown to enhance the therapeutic process and outcomes in

interventions (Fluckiger & Grosse, 2008). Group, as opposed to individual therapy, was decided upon due to its evidenced ability to support attitude and behavioural change in group members when group cohesion is good (Beech & Fordham, 1997).

Following this initial module, Client A engaged in a group programme that explored his experiences of difficult emotions. This group explored how he and others around him manage difficult emotions and introduced him to a range of skills that he could implement to help him to regulate his anger arousal levels. Such skills included information seeking to reduce cognitive distortions (Zeidner & Endler, 1996), problem solving skills to help manage stressful situations (Roger, 2006) and arousal reduction techniques such as progressive muscle relaxation (PMR) to reduce physiological tensions. PMR has been shown to be effective in reducing aggression in individuals with mild learning disabilities (Bellemans et al., 2017).

After enhancing motivation to change and developing emotion regulation skills, the final aspect of the group intervention focused on exploring the factors that increase Client A's risk of offending. The main aim of this was to facilitate Client A's insight into the role that peers have had on his offending; something that at the point of referral he was reported to have little insight into. Denial of one's problems can act as a barrier to treatment success (Marshall et al., 2011), therefore, it was essential to initially seek to enhance Client A's motivation to change and then towards the end of the intervention, seek to establish the success of this by exploring his insight into the role of peers on his offending behaviour.

Client A's engagement in each aspect of this treatment pathway is discussed below.

Planning and Development. Client A engaged in 20 group sessions. Client A's presentation and engagement remained positive throughout the sessions, though at times his responses appeared to be influenced by peers. Each session lasted approximately 60 minutes and took place in the group room for group sessions. Each group session was planned prior to the session taking place, using the corresponding session plan either from the pre-constructed

session plan or the Life Minus Violence-Enhanced manual. Session plans and materials were adapted with input from the onsite Speech and Language Therapist to meet the needs of the young people in the group. Supervision was offered weekly throughout the intervention as a place to discuss group dynamics, discuss session plans/materials and to reflect upon facilitation style and issues. Client A's progress in the intervention was discussed within his monthly Multi-Disciplinary Team meeting and in his sentence plan review meeting which took place every three months.

Intervention Modules.. The interventions that Client A engaged in were all conducted by the author of the case study. This section will provide an overview of each group intervention.

1) *Life Minus Violence-Enhanced: Barriers to change, optimism and resilience*. Client A attended an introductory group module of Life Minus Violence-Enhanced which focused on enhancing motivation to change and building group skills. This was then followed by exploring reasons for wanting to change aggressive behaviour, identifying barriers to changing aggressive behaviour, and exploring types of aggression. Client A demonstrated an understanding of his personal barriers to change and was able to reflect on his personal qualities and how these strengths could help him to refrain from engaging in future aggressive behaviour.

2) *Handling Difficult Feelings.* Client A then completed a group programme that focused on emotions; understanding emotions, including their triggers, and learning skills to manage difficult emotions. Within this, Client A demonstrated a good understanding of his personal reactions to difficult emotions and showed a willingness to implement the skills that were taught for emotion regulation.

3) *What Got Me Here?* The final group intervention that Client A attended was a programme that explored his offending behaviour as a whole in terms of the factors that

contributed to his offending. It also aimed to equip him with skills to manage these factors, including peer pressure in the future, and encouraged him to develop a relapse prevention plan for potential high risk situations in the future. Within this programme, Client A demonstrated some insight into the factors that contributed to his index offence. However, the influence of peers was quite apparent within the group. His responses appeared to be influenced by his peers in attempt to receive a positive comment and at times when completing a written piece of work, he would copy the responses of his peers.

Results

Overall, Client A progressed in several areas throughout the group interventions. He demonstrated increased insight into the factors that contributed to his offending behaviour and maintained a high level of motivation to engage in intervention whilst in custody. Although Client A made progress in some areas throughout his time in custody, peers continued to play a role in influencing Client A's aggressive behaviour. This outstanding area of need was addressed in Client A's group and violence risk assessment report and recommendations for further work on this area suggested.

Psychometrics – NAS-PI

Prior to and after the group interventions, Client A completed a Novaco Anger Scale and Provocation Inventory (Novaco, 2003). Table 5.1 displays the comparative results.

Table 5.1: *Comparative pre and post NAS-PI psychometric assessment results*

	Pre group raw score	Post group raw score	Pre group T-score	Post group T-score	Pre group Category	Post group Category	Reliable Change*	Range
Total NAS	126	125	72	71	Very High	Very High	SE = 16.7 √1 - 0.89 = 5.56 Sdiff = √2 x $(5.56)^2$ = 7.86 RC = 125 – 126 / 7.86 = -0.13	Not Clinically Significant
Cognitive	39	41	65	68	High	High	SE = 5.67 √1 - 0.82 = 2.38 Sdiff = √2 x $(2.38)^2$ = 3.37 RC = 39 – 41 / 3.37 = - 0.59	Not Clinically Significant
Arousal	41	37	68	63	High	High	SE = 5.67 √1 - 0.83 = 2.59 Sdiff = √2 x $(2.59)^2$ = 3.66 RC = 37 – 41 / 3.66 = -1.09	Not Clinically Significant
Behaviour	46	47	74	75	Very High	Very High	SE = 6.21 √1 - 0.88 = 2.11 Sdiff = √2 x $(2.11)^2$ = 2.98 RC = 47 – 46 / 2.98 = 0.34	Not Clinically Significant
Anger Regulation	21	26	38	54	Low	Average	SE = 4.12 √1 - 0.72 = 2.18 Sdiff = √2 x $(2.18)^2$ = 3.08	Not Clinically Significant

							RC = 26 – 21 / 3.08 = 1.62	
Total	85	96	61	71	High	Very High	SE = 13.09 √1 - 0.85 = 5.10	Not Clinically
Provocation							Sdiff = √2 x $(5.10)^2$ = 7.21	Significant
Index							RC = 96 – 85 / 7.21 = 1.52	

Key:

SE = Standard Error

SD = Standard Deviation

r = Reliability measure

Sdiff = Standard Difference

RC = Reliable Change (RC needs to be above 1.96 for a clinically significant improvement)

x^2 = Pre Test Score

x^1 = Post Test Score

Calculations:

1. $SE = SD\sqrt{1 - r}$

2. $Sdiff = \sqrt{2}(SE)^2$

3. $RC = x^2 - x^1 / Sdiff$

Client A completed the Novaco Anger Scale and Provocation Inventory (NAS-PI) before the group interventions commenced and after the groups ended. The results from the psychometric assessment reveal that Client A's levels of anger remained fairly constant between each time point. The main difference that was observed was an improvement in Client A's ability to regulate his anger levels. From qualitatively exploring the outcomes, Client A scored within the average range post intervention. This suggests that Client A may have begun to implement the strategies explored within the handling difficult feelings (The Change Companies, 2013) aspect of the group intervention. Angry cognitions, arousal and behaviour levels remained in the high/very high range. Post intervention, Client A's scores on the provocation scale increased. Possible explanations for this increase include that Client A has been in custody for a longer period of time and his tolerance levels to the stressors experienced in custody had reduced. Other explanations may be a result of Client A's mood at the time of testing. He appeared subdued in the post assessment. Factors such as an unsuccessful early release application may have contributed to this.

Reliable Change Statistics

To explore change quantitatively at an individual level, the reliable change statistics was utilised (Wise, 2004). To calculate the Reliable Change Index the following formula was used, RCI = $x^1 – x^2$ / Sdiff. In order to demonstrate clinically significant change, the client's pre/post intervention measure difference should fall two-standard deviations from the mean of a standardised population. The formula detailed in Table 5.1 was applied to each subscale of the NAS-PI. The standard deviation values for all subscales was taken from data produced by Zhou et al. (2018). This data was obtained from a sample of adolescent offenders and therefore most similar to Client A. Test-retest reliability data for all subscales except for anger regulation was taken from Mills et al., (1998) who reported reliability statistics from a sample of adult male offenders. The reliability value for the anger regulation subscale was taken from the

original Novaco (2003) paper as no data on a more similar population could be located. As seen in the data in Table 5.1, no clinically significant change was observed in any of the subscales on the NAS-PI (Novaco, 2003).

Observed Change

Client A's progress since being in custody has been positive. He maintained consistent education attendance, formed many positive relationships with staff, and engaged well in offence focused intervention. He engaged well with a Speech and Language assessment which identified further areas of difficulty. The findings and recommendations from this assessment were submitted to be incorporated into his EHCP alongside the findings from the WASI-II. Client A demonstrated a positive attitude in his release preparation meeting where he selected an education provider that was further from a negative peer group. This demonstrated an increased level of insight into his risk factors for future offending. Due to the progress Client A made, he was able to have three escorted community visits as part of his release preparation. The author attended Client A's Intensive Support and Surveillance Planning Meeting one week after his release from custody. During this meeting Client A demonstrated his motivation to engage with intervention and his ability to comply with his licence conditions as he had not breached them at the point of the meeting. It is evident, however, that when in the presence of negative peers, Client A's behaviour is negatively impacted upon. If Client A had longer in custody this could have been explored further. Since this was not the case, it was recommended the community youth offending team explore this and take this into consideration when putting intervention plans in place for Client A.

Reflections on Therapeutic Alliance

Upon reflection, Client A's willingness and ability to engage in intervention throughout his time in custody may be due to the quality of the therapeutic relationship that he developed with the author, an important component of treatment outcomes (Martin et al., 2000). Having

been able to follow Client A throughout his time in custody, from assessing him at the point of admission, engaging with him in group and individual sessions, to attending his release preparation meetings and post release meetings, seems to have contributed to Client A's willingness and openness when in sessions. Being able to follow a client throughout this process was rewarding to the author. This was only possible due to the short time that Client A spent in custody. Although beneficial in this respect, the short sentence meant that some treatment/interventions that were identified as needs were made as recommendations for the community team. This emphasises the importance of effective sequencing of intervention targets based on risk and need. The author feels this was effectively achieved in the case of Client A.

Discussion

In sum, Client A appeared to have responded well to the implemented intervention. Insight into the risk factors that surround his violent behaviour appears to have improved, as did his ability to regulate his emotions when in an aroused state. Although his scores on the NAS-PI showed an improvement on the regulation subscale, as with all other subscale change scores, this did not reach a level of clinically significant change. A possible explanation for this is the short follow-up period for post assessment. A longer follow-up period may have provided Client A with a period of skill consolidation and clinically significant change may have been seen. In addition to this, Client A continued to engage in violent behaviour in custody post intervention. This is potentially explained by the previously discussed research which highlight the role that anti-social peer associations have on violent behaviour in others (Akers, 1998; Carrington, 2009; Darley & Latane, 1968; Farrington, 2003; Lantz & Ruback, 2017; McGloin & Piquero, 2009; McGloin & Thomas, 2016; McPhail, 1991; Warr, 2002; Wallach et al., 1964). Since Client A was in custody throughout this intervention, he would have been alongside peers with violent supportive beliefs and who also engage in violent behaviour.

It is also possible that Client A's unresponsiveness to treatment could be explained by the Trauma Recovery Model (Skuse & Matthew, 2014). Within this model, Skuse and Matthew (2014) identify seven layers of intervention that are sequenced based on developmental need. The model aims to reduce the impact of developmental trauma so that cognitive interventions can be effective. The model highlights the need for clients with a history of trauma to have gone beyond the cognitive threshold in the model. This involves an individual progressing through the seven layers of intervention and underlying need. The first layer relates to the need for there to be a foundational belief of redeemability, that is, those involved in the treatment and care of the individual must believe that change is possible for the individual. The second layer relates to an individual's readiness to build relationships with an adult, but this cannot be achieved without a stable, secure and nurturing environment. The third layer relates to an individual developing trusting relationships with adults. Once this is achieved the individual can begin to process past traumas (level four). It is only through doing so that the individual can pass the cognitive threshold and begin to engage in cognitive based interventions such as anger management. Here, in level five of the model, the individual can engage in interventions that aim to develop thinking and planning skills. The sixth layer relates to future goal planning, which leads to the seventh layer of achieving goals.

The Trauma Recovery Model (Skuse & Matthew, 2014) indicates that engaging in trauma based interventions should take place prior to cognitive based interventions that focus on the implementation of skills based on eliciting cognitive and behavioural change. This premise is consistent with the theoretical underpinnings of polyvagal theory (Porge, 2009). Whilst accepted that this would be the ideal trajectory of therapeutic engagement, the reality of practice makes this potentially unfeasible. Whilst a safe and secure environment with staff with whom individuals can develop trusting relationships with is at the forefront of trauma informed/attachment based care (Burrell, 2013), the brevity of custodial sentences often means

it is not possible for trauma interventions to be implemented and shorter cognitive behavioural interventions focused on skills deficits are implemented instead. Therefore, whilst Client A may have benefited from engaging in trauma based work prior to the cognitive behavioural interventions, his limited time in custody would have prevented him accessing all layers within the Trauma Recovery Model. Further to this, the development of emotional regulation skills is recommended as a precursor to trauma focused interventions (Rothschild, 2000). Without the skills base to be able to tolerate the distressing emotions that trauma work can evoke, the therapist is likely to be posed with ethical questions around the client's suitability for trauma treatment at that time point. Although the potential impact of trauma on responsiveness to intervention was not accounted for at the point of planning, the author did take considerable measures to ensure at the point of planning that treatment interventions were appropriately sequenced in accordance with level of risk and need.

Two theoretical models have helped to guide the treatment planning for Client A. The Conceptual Model of Peer Rejection (Chen et al., 2016) assisted to explain and help formulate the development of Client A's violent behaviour, notably weapon possession and use. Based on the link between this model and Client A's behaviour, clear intervention targets could be identified and sequenced to meet the needs of Client A. One limitation of this model is the failure to explore the role of moderating variables such as parental support in reducing violent behaviour in the presence of association with anti-social peers. The importance of a strength-based approach has been emphasised by the trans-theoretical model (Prochaska & DiClementes, 1982). For this reason, interventions based on this model were implemented throughout the treatment programmes. These groups enabled Client A to build motivation to change, explore his risk factors including emotion dysregulation and peer influence, and develop strategies to help regulate his emotions.

Despite change in anger levels not being clinically significant, Client A's improved scores for anger regulation, along with his increased insight into the role peers play on his behaviour, suggest the treatment plan devised and implemented was successful in achieving its aims. Client A's underlying social and intellectual difficulties have been argued throughout to have precipitated his involvement with antisocial peers that engage in gang activity within his community area. The nature of the establishment in which Client A completed this intervention meant he remained in the company of anti-social peers and this may explain his continued use of violence within custody.

At the end of the group programmes and whilst completing the SAVRY risk assessment report, it became apparent that there were some outstanding areas of need that may benefit from future intervention. A range of recommendations were made as a result. These included the building of social skills (Kazdin, 2003). This would have assisted Client A to develop prosocial peer relationships and supported him to manage himself amongst violent peers if in their company. Further support within education would also be beneficial, especially following review and update of his EHCP. Success within education has been argued to help young people to refrain from associating with groups of antisocial peers (Vacca, 2004). Further interventions were recommended to be completed on a 1:1 basis. This was due to the influence peers had on Client A's behaviour and overall engagement within group sessions.

Chapter 6

General Discussion

The overall aim of this thesis was to explore the impact of childhood maltreatment on violent behaviour in custodial settings in the UK. Within this, it aimed to explore potential treatments that are effective in reducing violent behaviour that is associated with childhood trauma. In order to address this aim, four methods, described within Chapter 2, 3, 4 and 5, were implemented.

Summary of Findings

Chapter 2, an empirical study, aimed to explore the reported experiences of childhood maltreatment in youth within a custodial facility in the UK and the association of this with violent behaviour. The findings revealed that 86% of youth sentenced to a custodial establishment for committing a violent offence had a history of childhood maltreatment. The experience of childhood maltreatment was associated with the use of violence at the three explored time points; previous violent offending, current violent offending, and violence perpetrated within custody (towards both staff and other young people). Other key findings included that those identified as BAME were more likely to have been convicted of a knife crime offence and were more violent towards staff in custody than their white counterparts.

Also within Chapter 2, two models predictive of violence in custody were explored. One pertaining to violence towards staff and the other violence towards young people. High levels of custodial violence (Ministry of Justice, 2021) and high staff turnover (Byrd et al., 2000; Matz et al., 2014; Rizzo et al., 2021) prompted this exploration. Both models yielded high levels of positive predictive accuracy (65.2% and 84.3% respectively). However, levels of model specificity were low (42.5% and 52.7% respectively). Therefore, neither tool was assessed to have utility in application within custodial settings. As a result of the findings of Chapter 2 relating to childhood maltreatment and violence, it was deemed imperative that an

exploration take place into the effectiveness of trauma informed treatment interventions in reducing violence displayed by young offenders. The systematic review, described in Chapter 3, aimed to do this.

The systematic review, discussed within Chapter 3, explored the effectiveness of trauma informed interventions in reducing aggressive and violent behaviour in young offenders within custodial settings. The reviewed RCTs revealed that a range of interventions were effective in reducing aggressive behaviour in youth custody settings. Only two however, were found to have the highest level of methodological quality, six were found to be highly trauma informed (including one with an overall low risk of bias) and six were found to be trauma informed to some extent (including one with an overall low risk of bias). The systematic review revealed that the overall evidence base within the UK was limited, highlighting the need for more high quality studies to be carried out. One of the highest quality studies within the UK conducted by Mitchel et al. (2011), revealed CBT to be effective in reducing aggressive behaviour in young offenders when assessed using the YSR (Achenbach, 1991). Although the YSR was able to explore a range of psycho-social constructs, a psychometric specifically focused on levels of violence and aggression needed to be identified prior to exploring the effectiveness of CBT within a case study. The NAS-PI (Novaco, 2003) was identified as an aggression/violence specific psychometric tool.

Chapter 4 provided a critique of the NAS-PI (Novaco, 2003) with the aim of exploring its reliability and validity when applied to forensic settings. The evaluation of the NAS-PI revealed it to be a valid and reliable measure of anger when used within forensic settings, with particular strengths in reactive aggression and violence prediction noted. The scale measures four constructs of anger: cognitions, arousal levels, anger related behaviour, and anger regulation skills. It also explores five content areas of common situations that provoke anger (disrespectful treatment, unfair treatment, frustration, and annoying traits in others). Those who

score in the very high range are likely to experience a level of associated distress and therefore require intervention. One interesting finding from this critical evaluation was that the NAS (Novaco, 1994) was able to assess anger that stems from traumatic experiences (Novaco & Chemtob, 2002). As a result, the NAS-PI was judged to be an effective psychometric tool designed to measure the effectiveness of trauma treatment in reducing levels of violence and aggression. Consequentially it was utilised within Chapter 5, a case study.

Chapter 5 explored the effectiveness of a group CBT based intervention in increasing emotion regulation skills and reducing levels of aggression (assessed using the NAS-PI) in a male young offender with a history of childhood maltreatment. Through exploring Client A's case in a psychological case formulation, a needs sequenced treatment plan was devised and implemented. Responsivity needs required careful consideration within the treatment plan. These included a diagnosis of ADHD and cognitive abilities within the borderline range. A key influence on Client A's violence was his peers. This also acted as a treatment interfering variable within this case study.

Although CBT, as identified within the systematic review, is an effective treatment for violence and aggression, the results of this case study did not provide evidentiary support for this. Clinically significant change was not found on any of the domains assessed by the NAS-PI (Novaco, 2003), when measured using the reliable change statistic (Wise, 2004). A range of potential explanations for this were explored. These included the coercive role of anti-social peers (Akers, 1998; Carrington, 2009; Darley & Latane, 1968; Farrington, 2003; Lantz & Ruback, 2017; McGloin & Piquero, 2009; McGloin & Thomas, 2016; McPhail, 1991; Wallach et al., 1964; Warr, 2002). The Trauma Recovery Model (Skuse & Matthew, 2014) offers another explanation for the lack of significant outcomes in Client A's case. The authors of this model propose that past traumas should be processed before an individual is ready to meaningfully engage in cognitive based interventions such as anger management. This model

highlights the importance of taking trauma and trauma response into consideration when implementing such interventions and the need to assess the potential influence of trauma on treatment/assessment outcomes.

The presence of trauma within this case, alongside a diagnosis of ADHD, was also worthy of exploration. Systematic reviews conducted by Szymanski et al. (2011) and Craig et al (2020) draw attention to the problems that can be caused by mislabelling trauma symptomology as ADHD. The overlap in symptoms can mean that experiences of trauma remain undetected and incorrectly treated often through pharmacological interventions. Both papers emphasise the need for more research to aid the understanding of the trauma-ADHD relationship and advocate for screening of trauma histories in children diagnosed with ADHD. For the case of Client A, it is possible that the ADHD diagnosis that he received at the age of four was the result of the trauma symptomology being mislabelled given the overlap in presentation. Equally, it is possible both trauma symptomology and ADHD co-existed in Client A's childhood. It is also possible the enduring problems Client A presented as a child were a consequence of ineffective treatment sequencing. However, at the current time, the optimal sequencing of interventions for such cases is unclear. More research is required within this area.

Implications of Findings

One of the key findings from this thesis was the impact that trauma had as a treatment interfering variable. The consequences of such findings have wider implications for forensic practice, specifically in relation to intervention effectiveness. Within Chapter 3 CBT was identified to be an effective therapy for aggression reduction that is associated with trauma. Consequentially, CBT was implemented within the case study, detailed within Chapter 5. The findings of the case study, however, did not support the effectiveness of CBT in aggression reduction. The explanations that were drawn upon to explain this were the Trauma Recovery

Model (Skuse & Matthew, 2014) and Polyvagal Theory (Porge, 2009). The Trauma Recovery Model proposed that an individual who has experienced trauma, needs to address a series of underlying needs before they can reach a point where they can meaningfully engage with higher levels of cognitive intervention. Once stability in the form of structure and routine is achieved, an individual can then begin to develop trusting relationships with appropriate adults. It is only when such relationships are formed that an individual can begin to work through their trauma. The Trauma Recovery Model proposes that this layer of intervention is needed before cognitive interventions such as anger management, consequential thinking or victim empathy can be meaningfully accessed. Prior to this point, the individual may be unregulated and have limited ability to develop insight into their behaviour.

The Polyvagal Theory (Porge, 2009) further explains the difficulties that an individual who is experiencing symptoms associated with trauma will experience when trying to engage in cognitive based activities, including cognitive interventions. The polyvagal theory draws attention to the role of the autonomic nervous system (ANS) in trauma. When the ANS activates the sympathetic nervous system (fight or flight system), the different regions of the brain are no longer integrated and our ability to access the areas of the brain associated with cognitive tasks is impaired. Explained further, cranial nerves within the human body directly connect the brain to muscles, bypassing the spinal cord. The tenth cranial nerve is called the vagus nerve. The vagus nerve controls the ANS, both parasympathetic (rest and digest) and sympathetic (fight or flight) strands. When we feel safe, the ANS activates the parasympathetic nervous system, we feel calm and can engage on a cognitive level with life. Conversely, when we feel threatened, the sympathetic nervous system is activated and a stress response is triggered. Those individuals with unresolved trauma remain in this state, which results in difficulties with concentrating and regulating emotions.

Both the Trauma Recovery Model and Polyvagal Theory explain the non-significant findings in the case study within this thesis. They also assist to explain the low levels of effectiveness that offending behaviour programmes, such as RESOLVE, have on violent reoffending rates (Robinson et al., 2021). It is possible that as opposed to the content of the programmes being ineffective, it is the failure to adequately sequence treatment interventions in line with the Trauma Recovery Model that results in ineffective outcome findings. Given the high prevalence rates of childhood trauma within the UK Justice System (84.2%; Ford et al., 2020) it is surprising that trauma is not considered within the design, implementation, and evaluation stages of programme delivery. Given the abundance of trauma histories within the justice system, it would perhaps be more credible to implement trauma informed practices across all systemic levels of the justice system. By doing so and creating a safe and predictable environment where positive relationships with staff and peers can be established, individuals within the justice system will be better able to access trauma therapies. Through doing so, cognitive interventions, including Offending Behaviour Programmes, may result in more effective outcomes, both in terms of improved mental health/wellbeing and reduced violent behaviour for the prisoners.

Another key finding was the significant ethnicity differences found in Chapter 2 between those identified as white and those identified as BAME. These included BAME individuals being convicted of more knife offences than white, BAME individuals being more likely to have a parent who has a criminal conviction than those identified as white, and those identified as BAME being more likely to be violent towards staff members than those identified as white. Potential explanations for this are explored. These include black individuals being more likely to receive a custodial sentence for all crimes than white individuals (Frater & Gamman, 2020; Hoods, 1992; May et al., 2010; Waller, 1988); knife crime being more prominent in low income areas where populations of black individuals are higher (Alleyne &

Wood, 2010) and that sentencing is also tougher in those areas (Briggs, 2017). Stop and search practices and the prejudice within it (Frater & Gamman, 2020) is another suggested explanation for the over representation of black individuals found within the justice system (Barn et al., 2018).

The implications of these findings are manifold. They include the need to separate ethnicities when investigating associations between violence (types and levels) and ethnicity. This is due to cultural differences within each minority group. Treating minority ethnicities as a collective means that it is not possible to disentangle cultural influences on outcome variables. Implications also include the need to explore the disproportionality in the ethnicities of custody officers in the justice system, with only 6% being identified as black (Jolliffe & Hague, 2017). The racial disparities within custodial settings may explain the higher levels of violence perpetrated towards staff from those identified as BAME than those identified as white. To be able to identify the causal mechanisms behind this, more research is needed. Findings from this would have implications for recruitment and violence reduction strategies within custodial establishments.

These findings and explanations also highlight the need for the role of generational trauma to be taken into consideration and explored when examining the trauma histories of black men within the justice system. Generational trauma is a secondary form of trauma that is passed from one generation to the next (Davidson & Mellor, 2001). Sharpe (2010) highlights the generational impact that slavery, colonialism, imperialism, and segregation have had on black people. The experiences of parents and grandparents of those within the justice system may impact on how the individual responds to the prison environment. In line with importation theory (Irwin & Cressey, 1962), it is proposed that the attachment difficulties/behaviours, identity confusion, addictions and dysregulated emotions that can result from generational

trauma, are brought into the prison environment. It is these difficulties that can perpetuate problems with prison violence (Arbach-Lucioni et al., 2012).

Limitations of Findings

Whilst the findings of this thesis have a number of implications for future research and practice, the limitations of the thesis should be noted. One limitation outlined in Chapter 2 was the inability to answer all research questions due to the limited sample sizing. Although it was possible to explore the experience of childhood maltreatment as a whole, it was not possible to explore maltreatment types on an individual level. The sample within Chapter 2 was also notably biased, in so far as that all participants had engaged in a violent offence. A high level had previous violent convictions (n = 217) and the majority engaged in violence within custody (n = 225). Consequentially, the explored violence prediction models were found to have low levels of model specificity (45.2% for violence towards staff and 52.7% for violence towards other young people). A larger sample of both violent and nonviolent young people who had experienced childhood maltreatment may have yielded a more specific model. A larger sample of this nature would have also allowed for moderating factors to be explored within the sample. The factors that can help a maltreated child to refrain from engaging in violence would have useful implications for early interventions for maltreated children. Prospective studies of this kind, as opposed to a retrospective design, as implemented within this thesis, would strengthen these results.

The retrospective design within chapter 2 also contributes to further limitations within the dataset. One limitation is that file data alone was used. There are notable biases within this method, including biases in data collection and data entry. The study used multiple case files and databases where the data had been created and input by multiple people. It is therefore not possible to conclude that the way one individual operationalised each of the variables was consistent. One person's definition of each abuse type may differ to that of another person.

This design also meant that it is possible that some young people, who had experienced childhood maltreatment went undetected. The experience of maltreatment may have been undetected due to a lack of social services involvement with the case. Further to this, the use of file data alone limits the richness of the data. Important details about the experiences have therefore not been explored. This includes perpetrator characteristics and experiences of repeat or revictimisation. It also means abuse types, such as exposure to domestic violence, which is identified as a gateway for exposure to other traumas such as physical abuse (Grasso, 2022), have not been fully explored and the impact this has on the young person is not clearly understood.

Findings from the systematic review were also notably limited. Only one high quality study from the UK was located. Whilst this does draw attention to the limited evidence base within peer review journals in the UK, it does suggest that criterion within the systematic review in this thesis was too narrow. The inclusion criteria of RCTs may have been too restrictive and a broader inclusion criterion of any empirical study that investigates the effectiveness of a trauma informed treatment on reducing aggressive behaviour in youth custody settings should have been opted for. The nature of RCTs make them difficult to successfully and ethically implement within custodial settings. Future systematic reviews should take this into consideration when exploring the effectiveness of trauma treatments in reducing violence levels in custodial settings. Future research within this field is recommended to address the identified limitations within this thesis.

The findings from the case study detailed in Chapter 5 are also worthy of note. Client A displayed positive behaviour change following interventions despite his pre and post intervention assessment measures not indicating clinically significant change. It is possible that the follow up period between intervention and post assessment measures being completed was too short. This, and the absence of objective behavioural observation data is a clear

limitation of the case study design. This is something that future research utilising a case study design should consider.

Future Research

Recent developments within the Youth Justice System highlight the current relevance of the findings from this thesis and also emphasise the necessity of future research in this area. Since completing the empirical study detailed within Chapter 2, the establishment where the data was collected has closed. With only one Secure Training Centre open within the UK, the development of future youth custody provisions will be an interesting area of development. Secure Schools, as advocated for in the 2016 Review of the Youth Justice System in England and Wales (Taylor, 2016), is one area where future research into the effectiveness of this environment in treatment outcomes for young offenders will be needed. Taylor (2016) argued that the government must reconceive youth prisons as schools. He proposed that secure schools will be smaller custodial establishments with a capacity to house 60-70 young people. Taylor (2016) stresses the importance of education, health, and offender desistance programmes within these schools. Whilst trauma informed care is not explicitly mentioned within the Review of the youth Justice System report (Taylor, 2016), the need for a psychologically informed ethos is. This will be an interesting area of development over the coming years. Its effectiveness in producing better outcomes for traumatized youth will path the way for further developments.

Other projects worthy of future research into their effectiveness that have recently commenced implementation in the UK include The Secure Stairs framework. This approach, developed in line with the Trauma Recovery Model (Skuse & Matthew, 2014) promotes the embedding of a psychologically informed team formulation across the establishment. The young people within the establishment are encouraged to be part of the formulation process and the trauma needs of the individuals are put at the forefront of the young person's care.

Whilst implementation is still in its infancy, research exploring the impact of the young persons' involvement with the formulation process has been evaluated (McKeown et al., 2020). McKeown et al. (2020) found significant improvements on staff self-ratings on measures that assessed their knowledge of the young person, confidence in working with the young person, as well as satisfaction with the treatment plan (p <.001). Two secure children's homes and two Young Offender Institutes continue to implement the Secure Stairs framework. Whilst there is a need for further embedding of the principles within these establishments (Edbrooke-Childs, 2022), future evaluations on the effectiveness of this approach on outcomes for young people are needed.

One critical note in regard to future research is the need for research projects to be submitted for publication. Whilst many research projects take place within the criminal justice system, few are published within peer-reviewed journals. Without the accessibility of the investigations that explore the effectiveness of trauma treatments including trauma informed environments on a range of outcomes, future systematic reviews, as within this thesis, will remain limited. Without the sharing of this knowledge and findings, the scope for changes to policies and practice within custodial settings is much narrower.

Conclusion

In sum, this thesis has identified that the experience of childhood maltreatment is highly prevalent within a youth custody facility in the UK (85.7%). Though actual experiences are likely to be higher as this data was obtained from case files where maltreatment has been explicitly reported or investigated by social services. It is likely that this is a common feature of other youth custody facilities. Further to this, childhood maltreatment was significantly associated with violent offending, violent re-offending, and violent behaviour in custody, both towards staff and other young people. To explore potential trauma treatments to target violent behaviour, a systematic review was conducted. This found a small pool of high quality and

highly trauma informed interventions that were effective at reducing aggressive/violent behaviour within youth custody settings, only one of which was conducted in the UK. CBT was identified by the majority to be an effective intervention. However, the described case study that utilised the NAS-PI did not yield supporting results for this. The case study did highlight the need to take trauma into account when implementing interventions along with the need to consider other factors such as peer influence on treatment outcomes.

One critical element highlighted within this thesis is the need to consider ethnicity at all levels of intervention. Chapter 2 identified that those identified as BAME were more likely to be violent towards staff than those identified as white. Ethnicity differences were not highlighted to have been considered within the reviewed intervention studies within Chapter 3 either because it was not considered to be a co-founding variable or because little consideration was given into its effect on outcomes within the design stage. Client A, described in the case study, was one of the individuals identified in Chapter 2 as BAME, experiencing child abuse and/or neglect and involved in violent offending, violent reoffending, and violent behaviour towards staff. Trauma is suggested to have played a role in the lack of evidentiary support provided by the case study for group CBT as an effective intervention for reducing aggression and violence in custody. On the basis of this, it is imperative that future research within the field focus upon exploring the effects that a trauma informed environment within custodial settings have on both violence reduction within the prison and also the effectiveness evaluations of offending behaviour/cognitive based interventions. The implications of this and the other recommended research are far reaching. It is only through such academic ventures that the best treatment outcomes for young offenders with a history of childhood trauma can be achieved.

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Appendices

Appendix A: Inclusion/Exclusion Form

Inclusion Criteria	Criterion met?	Comment
Study design: Is the study an RCT? (have participants been randomised to treatment groups, is a control group present)?	Yes Unclear Discuss No	
Population: Is the population young people (aged 10-25) detained in a custodial setting who have been convicted of an offence?	Yes Unclear Discuss No	
Outcomes: Has displayed violence reduced? Has displayed aggression reduced? Have overall negative behaviours improved?	Yes Unclear Discuss No	
Intervention: Has a psychological trauma based intervention (MST, compassion focused therapy, cognitive analytic therapy, psychotherapy, EMDR, trauma focused CBT, DBT) been used	Yes Unclear Discuss No	

Appendix B: Quality Assessment Form

Risk of bias assessment

Responses underlined in green are potential markers for low risk of bias, and responses in red are potential markers for a risk of bias. Where questions relate only to sign posts to other questions, no formatting is used.

Domain 1: Risk of bias arising from the randomization process

Signalling questions	Comments	Response options
1.1 Was the allocation sequence random?		Y / PY / PN / N / NI
1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions?		Y / PY / PN / N / NI
1.3 Did baseline differences between intervention groups suggest a problem with the randomization process?		Y / PY / PN / N / NI
Risk of BiasRisk of bias judgement		Low / High / Some concerns
Optional: What is the predicted direction of bias arising from the randomization process?		NA / Favours experimental / Favours comparator / Towards null /Away from null / Unpredictable

Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)

Signalling questions	Comments	Response options
2.1. Were participants aware of their assigned intervention during the trial?		Y / PY / PN / N / NI
2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial?		Y / PY / PN / N / NI
2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the trial context?		NA / Y / PY / PN / N / NI
2.4 If Y/PY to 2.3: Were these deviations likely to have affected the outcome?		NA / Y / PY / PN / N / NI
2.5. If Y/PY/NI to 2.4: Were these deviations from intended intervention balanced between groups?		NA / Y / PY / PN / N / NI
2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention?		Y / PY / PN / N / NI
2.7 If N/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized?		NA / Y / PY / PN / N / NI
Risk of BiasRisk of bias judgement		Low / High / Some concerns
Optional: What is the predicted direction of bias due to deviations from intended interventions?		NA / Favours experimental / Favours comparator / Towards null /Away from null / Unpredictable

Domain 2: Risk of bias due to deviations from the intended interventions (*effect of adhering to intervention*)

Signalling questions	**Comments**	**Response options**
2.1. Were participants aware of their assigned intervention during the trial?		Y / PY / PN / N / NI
2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial?		Y / PY / PN / N / NI
2.3. [If applicable:] If Y/PY/NI to 2.1 or 2.2: Were important non-protocol interventions balanced across intervention groups?		NA / Y / PY / PN / N / NI
2.4. [If applicable:] Were there failures in implementing the intervention that could have affected the outcome?		NA / Y / PY / PN / N / NI
2.5. [If applicable:] Was there non-adherence to the assigned intervention regimen that could have affected participants' outcomes?		NA / Y / PY / PN / N / NI
2.6. If N/PN/NI to 2.3, or Y/PY/NI to 2.4 or 2.5: Was an appropriate analysis used to estimate the effect of adhering to the intervention?		NA / Y / PY / PN / N / NI
Risk of BiasRisk of bias judgement		Low / High / Some concerns
Optional: What is the predicted direction of bias due to deviations from intended interventions?		NA / Favours experimental / Favours comparator / Towards null /Away from null / Unpredictable

Domain 3: Missing outcome data

Signalling questions	Comments	Response options
3.1 Were data for this outcome available for all, or nearly all, participants randomized?		Y / PY / PN / N / NI
3.2 If N/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data?		NA / Y / PY / PN / N
3.3 If N/PN to 3.2: Could missingness in the outcome depend on its true value?		NA / Y / PY / PN / N / NI
3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value?		NA / Y / PY / PN / N / NI
Risk of BiasRisk of bias judgement		Low / High / Some concerns
Optional: What is the predicted direction of bias due to missing outcome data?		NA / Favours experimental / Favours comparator / Towards null /Away from null / Unpredictable

Domain 4: Risk of bias in measurement of the outcome

Signalling questions	Comments	Response options
4.1 Was the method of measuring the outcome inappropriate?		Y / PY / PN / N / NI
4.2 Could measurement or ascertainment of the outcome have differed between intervention groups?		Y / PY / PN / N / NI
4.3 If N/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants?		NA / Y / PY / PN / N / NI
4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received?		NA / Y / PY / PN / N / NI
4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received?		NA / Y / PY / PN / N / NI
Risk of BiasRisk of bias judgement		Low / High / Some concerns
Optional: What is the predicted direction of bias in measurement of the outcome?		NA / Favours experimental / Favours comparator / Towards null /Away from null / Unpredictable

Domain 5: Risk of bias in selection of the reported result

Signalling questions	Comments	Response options
5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis?		Y / PY / PN / N / NI
Is the numerical result being assessed likely to have been selected, on the basis of the results, from...		
5.2. ... multiple eligible outcome measurements (e.g. scales, definitions, time points) within the outcome domain?		Y / PY / PN / N / NI
5.3 ... multiple eligible analyses of the data?		Y / PY / PN / N / NI
Risk of BiasRisk of bias judgement		Low / High / Some concerns
Optional: What is the predicted direction of bias due to selection of the reported result?		NA / Favours experimental / Favours comparator / Towards null /Away from null / Unpredictable

Overall risk of bias

Risk of BiasRisk of bias judgement		Low / High / Some concerns
Optional: What is the overall predicted direction of bias for this outcome?		NA / Favours experimental / Favours comparator / Towards null /Away from null / Unpredictable

Appendix C: Data Extraction Form

Study Information	
Author	
Data of publication	
Title of study	
Journal	
Study characteristics	
Aims	
Design	
Recruitment procedures (blinding)	
Participant characteristics	
Sample size	
Age	
Gender	
Facility	
Country	
Intervention/outcome	
Intervention type	
Comparison intervention	
Outcome measure	
Results	
Statistical method used	
Findings including *p* values.	
Missing data	
Strengths	
Limitations	

Appendix D – Chapter 5: Case Study Consent Form

THE UNIVERSITY OF NOTTINGHAM

DOCTORATE IN FORENSIC PSYCHOLOGY (D.FOREN.PSYCH)

CLIENT CONSENT TO COURSE WORK ASSIGNMENTS

I understand that Kayley Hatton, hereafter referred to as 'the trainee' would like my permission to use information about me to complete a course work assignment (oral case presentation and/or written case report).

I understand that the work will not contain any information that would reveal my personal identity i.e. my name or address; rather I will be referred to via a pseudonym or case number.

The work may be discussed in the trainee's supervision and personal development group or looked at by other trainees to help their learning.

I understand that the work will be checked by the trainee's supervisor and The University of Nottingham to see that my anonymity and confidentiality have been safeguarded.

I understand that course work assignments (and material relating to these) are kept in securely locked premises and are not available for public access.

I understand that I do not have to allow information about me to be used in this way. I can change my mind and refuse my consent at any stage and this will have no effect on the treatment offered to me.

Name of Client:

Client's signature:

Date: 07/05/2019.