The prevalence of comorbidity of antisocial personality disorder and substance misuse with other personality disorders and impact on violence and mental health outcomes

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Abstract

Background: Personality disorders are highly prevalent in forensic populations. Several specific personality disorders are associated with violence, particularly Antisocial Personality Disorder (ASPD). The comorbidity of ASPD with other personality disorders (Other PD) is also common, and this is of particular importance when assessing and managing risk of violence in clinical settings, especially forensic settings. Considerable evidence suggests that the risk of violence is further elevated by the comorbidity of personality disorders and substance misuse (SU). The impact of these co-morbidities has been under-researched to date.

Aims and objectives: The primary purpose of this thesis is to expand understanding of the cumulative effect of meeting criteria for more than one personality disorder, specifically comorbidity with ASPD. This thesis examined what patterns or combinations of these conditions were most closely associated with violence and mental health outcomes

Methods:. In Chapter 2, a systematic review to examine the existing literature on the prevalence of comorbidity of ASPD ± Other PD ± SU, and its associations with violence and health outcomes was conducted. In Chapter 3, empirical research was conducted to investigate the prevalence of ASPD ± Other PD ± SU, and the impact of comorbidity of ASPD ± Other PD ± SU on violence and mental health outcomes, in male forensic patients

aged 18-65 who were in receipt of psychiatric care in a secure hospital. Patients were categorised into four condition groups: Group 1) ASPD + Other PD + SU; Group 2) ASPD - Other PD + SU; Group 3) ASPD + Other PD - SU; Group 4) ASPD - Other PD - SU. In Chapter 4, a methodological critique to evaluate how the current personality disorder classification systems account for personality disorder comorbidities was conducted. Finally, in Chapter 5, a case study of a forensic psychiatric patient presenting with ASPD (+ high psychopathic traits), paranoid personality disorder (PPD) and SU was presented to explore the approaches to assessment, formulation and psychological intervention using schema-informed cognitive-behavioural therapy.

Results: This thesis found a high prevalence of ASPD and Cluster B personality disorder co-morbidity, particularly borderline personality disorder (BPD), in clinical and forensic populations. ASPD and BPD were associated with aggression, convictions, severe violence, reoffending, and suicidality, but the evidence on self-harming, anxiety and depression were contrary. The comorbidity of ASPD + Other PD + SU was the most prevalent in forensic patients, and was associated with severe violence and higher levels of convictions; whilst ASPD + Other PD – SU were associated with violence although less incidences of violence and fewer incidences of convictions. However, the impact on mental health outcomes appeared to be mixed and inconclusive due to limited availability of data and methodological challenges.

Conclusions: The overall findings depicted that the specific patterns of cumulative personality disorder diagnoses, being the comorbidity of ASPD + Other PD + SU, are risk factors for violence. The personality pathology appeared to be moderated by the effects of SU, which may account for manifestations of violence. Current diagnostic classification systems are over-simplistic and have failed to account for personality disorder comorbidities. This thesis highlighted the complexity of working with forensic samples with comorbidity of personality disorders and substance misuse and recommended narrowing the treatment target audience to this specific forensic sample group, being people with the comorbidity referred to above. In accordance with the risk-need-responsivity principles, the implication of doing this may mean that offender assessment and rehabilitation for this group will need to be more robust within the forensic services.

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LIST OF ABBREVIATIONS

ABH	Actual Bodily Harm
AMPD	Alternative Model for Personality Disorders
APA	American Psychiatric Association
APT	Association for Psychological Therapies
ASI	Addiction Severity Index
ASPD	Antisocial Personality Disorder
AUDIT	Audit Use Disorder Identification Test
AUDADIS-5	The Alcohol Use Disorder and Associated Disabilities Interview Schedule-5
BPD	Borderline Personality Disorder
BDI	Beck's Depression Inventory
BEHMHT	Barnet, Enfield and Haringey Mental Health NHS Trust
BFI	Big Five Inventory
CBT	Cognitive Behavioural Therapy
CIDI	Composite International Diagnostic Instrument
Cluster A PD	Cluster A Personality Disorder
Cluster B PD	Cluster B Personality Disorder
Cluster C PD	Cluster C Personality Disorder
DAPP-BQ	Dimensional Assessment of Personality Pathology-Basic Questionnaire
DBT	Dialectical Behaviour Therapy
DIB-R	The Revised Diagnostic Interview for Borderlines
DIPD-IV	Diagnostic Interview for DSM-IV Personality Disorders
DPD	Dissocial Personality Disorder
DSM-III	Diagnostic and Statistical Manual of Mental Disorders, Second Edition,
DSM-III-R	The Diagnostic and Statistical Manual of Mental Disorders (3rd ed., rev.
DSM-IV	The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition
DSM-V	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
EUPD	Emotionally Unstable Personality Disorder
FFMRF	Five-Factor Model Rating Form
GBH	Grievous Bodily Harm
HCR-20	Historic-Clinical-Risk management scheme-20
HRA	Health Research Authority
ICD-10	International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10)
IPDE	International Personality Disorder Examination
IRAS	Integrated Research Application System
LSARS	Lethality of Suicide Attempt Rating Scale
LSU	Low Secure Unit
MAPPA	Multi-agency Public Protection Arrangements
MBT	Mentalisation-based Therapy
MCMI	The Millon Clinical Multiaxial Inventory–IV
MCVI	MacArthur Community Violence Instrument

MHA	Mental Health Act 1983
MMPI-2	Minnesota Multiphasic Personality Inventory-2
MSU	Medium Secure Unit
M-TTAF	Multi-trajectory Theory of Adult Firesetting
NHS	National Health Service
NLFS	North London Forensic service
Other PD	Other Personality Disorders
OTI	Opiate Treatment Index
P	Psychopathy
P	General Psychopathology
PAI	Personality Assessment Inventory
PCL-R	Psychopathy Checklist Revised
PCL:(SV)	Hare Psychopathy Checklist: Screening Version
PiCD	The Personality Inventory for ICD-11
PID-5	Personality Inventory for DSM-5
PNC	Police National Computer
PPI-R	Psychopathy Personality Inventory—Revised
PPD	Paranoid Personality Disorder
PTRF	Clinicians' Personality Trait Rating Form
R&D	Research & Development
SASPD	Standardised Assessment of Severity of Personality Disorder
SCID	The semi-structured Schedule of Clinical Interview for Personality Disorders
SIDP-IV	Structured Interview for DSM-IV Personality
SID-R	The Structured Clinical Interview for DSM-III -Revised
SNAP	Schedule for Nonadaptive and Adaptive Personality
SRP-II	Self-report psychopathy scale
SSPD	Schizophrenia spectrum personality disorder
SU	substance misuse
SUD	Substance Use Disorders
VI	Violence Instrument / Violence Index
WHO	Worth Health Organisation
YSQ-SV	Young Schema Questionnaire-Short Version

Chapter 1

Introduction

1.1. Overview

Various organisations, including the Institute for Economics and Peace and the World Health Organisation, have reported on the significant impact that violence has in terms of its economic impact on the world's economy. For example, in 2022 the Institute for Economics and Peace reported that the global economic cost of violence annually was $17.5 trillion, equating to $2000 for every person alive at that time. The direct and indirect economic cost amounted to around $8.3 trillion, with the additional sum attributed to the loss of opportunity costs for the world economy, being the additional amount that might have been generated if some of the money used to deal with the impact of violence had been invested in, for instance, education or business development (Institute for Economics & Peace, 2023).

On a more local level, it is easy to see how the economic cost can mount up when we look around at, for example, the numbers of police on our streets, the attendees at A&E wards with injuries related to violence, and the cost of maintaining the criminal justice system, including courts and prisons.

In the UK, there is also a significant cost of delivering mental health services to people who have offended and have been diagnosed with personality disorders, and of professionals working with, or families and carers living with, these individuals. The total service cost was estimated to be over £11 billion, which included prescribed drugs, inpatient care, outpatient visits, GP contacts and lost employment. Additional cost was also incurred in respect of offenders who had contact with criminal justice services (McCrone et al., 2008).

Despite the cost, both in terms of the economy and the personal impact on individuals, and the clear benefits that would arise from being able to tackle the prevalence of violence in society through a better understanding of its causes, it is not a straightforward matter to tackle the underlying issues of violence. It is noted that there is a clear link between personality disorder and offending, as indicated by the high prevalence of personality disorders in forensic settings. Some specific problems are a central feature of personality disorder, particularly violence in offenders with Antisocial Personality Disorder (ASPD). Within the criminal justice system, offenders with ASPD often present significant management or supervision problems (e.g., assault in prison) due to their disregard for the rights of others, irritability and aggression (Warren et al., 2002; Young, Justice, & Erdberg, 2004). Additionally, evidence regarding pharmacological and psychological treatments for personality disorders up to the date of writing this report is very limited (e.g., Gibbon et al., 2020; Khalifa et al., 2020).

This introduction will start by outlining the key characteristics of ASPD and the personality disorders (Other PDs) that most frequently co-occur alongside it. I will then outline in more detail the link between ASPD, Other PDs, and substance misuse (SU), with violence. I will highlight the deficits in the literature when accounting for the effect of comorbidity. It appears that there is an incomplete picture of the interaction of these factors, and potential subgroups most at risk of violence. Finally, I will review the evidence base for other mental health problems associated with these conditions, and specific patterns of comorbidity.

1.2 Personality Disorder

Personality disorders are defined as *"an enduring pattern of inner experience and behaviour that deviates markedly from the expectations of the individual's culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time, and leads to distress and impairment"* (APA, 1994, p. 629). A set of criteria outlined in Figure 1.1 illustrates general personality disorder diagnostic criteria from DSM-IV (APA, 1994, p. 633). Ten specific personality disorders are coded on Axis II in the DSM-IV and are categorised into three clusters based on some overall common features.

Figure 1.1

DSM-IV and DSM-5 Criteria for the Personality Disorders

General Criteria for a Personality Disorder	General Criteria for a Personality Disorder
DSM-IV	**DSM-5 Criteria - Revised June 2011**
	The essential features of a personality disorder are impairments in personality (self and interpersonal) functioning and the presence of pathological personality traits. To diagnose a personality disorder, the following criteria must be met:
A. An enduring pattern of inner experience and behavior the deviates markedly from the expectations of the individual's culture. This pattern is manifested in two (or more) of the following areas: 1. Cognition (i.e., ways of perceiving and interpreting self, other people and events) 2. Affectivity (i.e., the range, intensity, liability, and appropriateness of emotional response) 3. Interpersonal functioning 4. Impulse control	A. Significant impairments in self (identity or self-direction) and interpersonal (empathy or intimacy) functioning.
B. The enduring pattern is inflexible and pervasive across a broad range of personal and social situations.	B. One or more pathological personality trait domains or trait facets.
C. The enduring pattern leads to clinically significant distress or impairment in social, occupational, or other important areas of functioning.	C. The impairments in personality functioning and the individual's personality trait expression are relatively stable across time and consistent across situations.
D. The pattern is stable and of long duration, and its onset can be traced back at least to adolescence or early adulthood.	D. The impairments in personality functioning and the individual's personality trait expression are not better understood as normative for the individual's developmental stage or socio-cultural environment.
E. The enduring pattern is not better accounted for as a manifestation or consequence of another mental disorder.	E. The impairments in personality functioning and the individual's personality trait expression are not solely due to the direct physiological effects of a substance (e.g., a drug of abuse, medication) or a general medical condition (e.g., severe head trauma).
F. The enduring pattern is not due to the direct physiological effects of a substance (e.g., a drug abuse, a medication) or a general medical condition (e.g., head trauma).	

Note. Adapted from https://www.psi.uba.ar/.../material/dsm.pdf. DSM-IV and DSM-5 Criteria for the Personality Disorders

An alternative approach to the diagnosis of a personality disorder was developed for DSM-5 as outlined in Figure 1.1. There has been considerable transition in the personality disorder description moving from the DSM-IV to the DSM-5 (APA, 2011, p.761), of which the core criteria of a personality disorder are defined as significant impairments in self and interpersonal functioning that are presumed to be continuously manifested. It is noted that the current DSM-5, and the Mental and Behavioural Disorders section of the International Classification of Disease (ICD), are classification

systems that are designed primarily for clinical purposes, specifically to provide a common language in clinical diagnosis. (See Chapter 4 for a methodological critique). Although DSM-5 is the classification system that is used currently, due to the ongoing challenges in transforming the diagnostic system of personality disorders within the DSM-5 (Herpertz et al., 2017), in this thesis DSM-IV will also be used to explain the translation of research literature.

1.2.1 Prevalence of personality disorder

A global systematic review reported that the worldwide prevalence of personality disorders was 7.8%, with high-income countries reaching 9.6% compared with low-income countries of 4.3%. The global rates of Cluster A, B and C PDs reached 3.8%, 2.8% and 5%, respectively. Despite the high levels of heterogeneity, a study has shown that personality disorders are prevalent globally (Winsper et al., 2019). It is estimated that the prevalence of personality disorders in the general UK population was 4-4.4% (Coid et al., 2006, 2017). However, it is noted that personality disorders are particularly overrepresented in forensic population (Coid et al., 2016).

There is a high prevalence of personality disorders among offenders, with some studies showing the figure to be as high as 80% (Alwin et al., 2006; Blackburn et al., 2003; Coid, 2002; de Ruiter & Trestman, 2006; Fazel & Danesh, 2002; Roberts & Coid, 2010; Rotter et al., 2004; Warren et al.,

2002). Personality disorders are reported to be significantly more prevalent in forensic samples than in community samples (e.g., Fazel & Danesh, 2002). In a systematic review of worldwide prison surveys, it was shown that 61-68% of male prisoners received a diagnosis of any personality disorders (Fazel & Danesh, 2002). According to the National Institute for Health and Care Excellence (NICE, 2009), the prevalence of personality disorders was 58% in male remand prisoners, 64% in male sentenced prisoners, and 50% in female remand and sentenced prisoners.

In forensic mental health settings, approximately one-third of forensic patients received a diagnosis of personality disorders during their first admission (Rickett et al., 2001), whereas between 40% and 65% of patients with personality disorders were detained in medium and high security settings (Blackburn et al., 2003; de Ruiter & Trestman, 2006; Harty et al., 2004; Howard et al., 2013; Völlm et al., 2017). The prevalence of personality disorders was 62% in UK secure hospitals (Blackburn et al., 2008) and 72% in Dutch secure hospitals (de Ruiter & Trestman, 2007).

1.3 Antisocial Personality Disorder

ASPD is a mental health condition which occurs in individuals from the age of 15 years, and which is characterised by a chronic and pervasive disposition to disregard and violate others' rights (American Psychiatric Association [APA], 2013). Clinicians consider ASPD as a particularly challenging type of personality disorder as its manifestations include failure

to obey laws and conform to social norms, as well as a predisposition to deceitfulness, impulsivity, irritability, aggressiveness, recklessness, irresponsibility and lack of remorse. These characteristics are often deeply ingrained and dysfunctional, leading to major difficulties in many areas of an individual's life, including unemployment, unstable interpersonal relationships, and criminality. ASPD is considered as non-diagnosable until at least the age of 18 years. To meet the diagnostic criteria, conduct disorder must be evident by history before the age of 15 years, and ASPD should not occur in the context of mental illness such as Schizophrenia or Bipolar Disorder (APA, 2013).

Figure 1.2

Comparison between DSM-5 and ICD-10

DSM-5—Antisocial Personality Disorder (301.7)	ICD-10—Dissocial Personality Disorder (F60.2)
A. A pervasive pattern of disregard for and violation of the rights of others, occurring since age 15 years, as indicated by three (or more) of the following: 1. Failure to conform to social norms with respect to lawful behaviors, as indicated by repeatedly performing acts that are ground for arrest. 2. Deceitfulness, as indicated by repeated lying, use of aliases, or conning others for personal profit or pleasure. 3. Impulsivity or failure to plan ahead. 4. Irritability and aggressiveness, as indicated by repeated physical fights or assaults. 5. Reckless disregard for safety of self or others. 6. Consistent irresponsibility, as indicated by repeated failure to sustain consistent work behavior or honor financial obligations. 7. Lack of remorse, as indicated by being indifferent to or rationalizing having hurt, mistreated or stolen from another. B. The individual is at least age 18 years. C. There is evidence of conduct disorder with onset before age 15 years. D. The occurrence of antisocial behavior is not exclusively during the course of schizophrenia or bipolar disorder.	Personality disorder, usually coming to attention because of a gross disparity between behavior and the prevailing social norms, and characterized by (at least three of the following criteria) 1. Callous unconcern for the feelings of others. 2. Gross and persistent attitude of irresponsibility and disregard for social norms, rules, and obligations. 3. Incapacity to maintain enduring relationships, though having no difficulty in establishing them. 4. Very low tolerance to frustration and a low threshold for discharge of aggression, including violence. 5. Incapacity to experience guilt, or to profit from adverse experience, particularly punishment. 6. Marked proneness to blame others, or to offer plausible rationalizations for the behavior bringing the subject into conflict with society. There may be persistent irritability as an associated feature. Conduct disorder during childhood and adolescence, though not invariably present, may further support the diagnosis.

Note. Adapted Münch, R., Walter, H., & Müller, S. (2020). Should Behavior Harmful to Others Be a Sufficient Criterion of Mental Disorders? Conceptual Problems of the Diagnoses of Antisocial Personality Disorder and Pedophilic Disorder. In *Frontiers in Psychiatry* (Vol. 11). https://www.frontiersin.org/article/10.3389/fpsyt.2020.558655

1.3.1 Prevalence of ASPD

According to the DSM-5, the prevalence of ASPD is 0.02% to 3.3% within the general population when the criteria from previous DSM editions are applied (APA, 2013). It is also estimated that the gender distribution tends to be skewed towards men with a 3:1 ratio of men to women (Compton et al., 2005). The lifetime prevalence was 1-1.3% among men and 0-0.2% among women in two European studies (Coid et al., 2006; Torgersen et al., 2001).

However, offenders presenting with ASPD within the criminal justice system are overrepresented compared to the general population. Within the UK prison settings, prevalence studies suggest that approximately 50% (±46-84%) of the offender population in the UK is diagnosed with ASPD compared to just approximately 4% of the general population (Ogloff, 2006; Shepherd et al., 2018; Singleton, 1998), over ten times more than in the general population (Coid, 2002; Fazel & Danesh, 2002; Fazel et al., 2016; Rotter et al., 2004).

ASPD are the most common personality disorders in prisoners (Fazel et al., 2016). For instance, a large-scale systematic review involving 12 countries revealed that approximately 47% of males and 21% of females were diagnosed with ASPD (Fazel & Danesh, 2002).

1.4 Aetiology of personality disorder

The aetiology of personality disorder is not currently known, although some specific experiences are thought to be related to one's later personality development. The exact mechanism is not clear. The development of personality disorder has included genetic factors and environmental factors which interplay with one's cognitive development. Aetiology studies suggest the precise cause of ASPD is unknown, as ASPD can be linked to several neurological abnormalities (e.g., serotonin, monoamine oxidase, and hormone dysfunctions), genetic and environmental influences, and psychological and social manifestations (Martens, 2000).

1.5 Association between personality disorders and violence

A specific association between personality disorders and violent offending has been established, however it does not necessarily imply a causal link between them (e.g., Duggan & Howard, 2009; Fazel & Danesh, 2002; Yu et al., 2012). It has been shown that impulse control and affect regulation are significantly associated with violence in all personality disorders (Esbec & Echeburúa, 2010). Violence displayed among individuals with personality disorders can be explained by the key constructs associated with aggression, namely aggression-related knowledge structures, maladaptive cognition and anger (Gilbert & Daffern, 2011).

With reference to Blackburn et al.'s (2003) personality pathology, Howard (2015) postulates that "*general psychopathology (p*)" is subsumed by three factors, "*externalising*" (acting out), "*internalising"* (anxious-inhibited), and

"thought disorder". Nevertheless, *p* is associated most significantly with *"thought disorder",* which has been shown to contribute independently to the risk of violence. Howard et al. (2015) reported that severe personality disorder, as defined by personality disorder criteria in DSM-IV, is significantly associated with violence and with high levels of both *"externalising"* and *"internalising"* personality features. In essence, emotional impulsiveness contributes to a general PD severity dimension, while *"thought disorder"* and contextual factors such as substance misuse operate as proximal causal risk factors for violence in addition to distal personality factors. Howard (2015) concluded that emotional impulsiveness, psychopathy, and delusional ideation conjointly contribute to a substantial risk of violent outcomes, eliciting a broad severity dimension of personality dysfunction.

The association between personality disorders and violence has been investigated extensively (Duggan & Howard, 2009; Gilbert & Daffern, 2011; Roberts & Coid, 2010; Yu et al., 2012). However, individuals diagnosed with personality disorders do not necessarily engage in violence nor present serious harm to society (Coid et al., 2006a, 2006b; Howard, 2015). Violent offending is found to be committed by a small number of individuals who present lifelong patterns of antisocial and aggressive behaviours that manifest from childhood and across their lifespan (Moffitt et al., 2002).

1.6 Association between ASPD and violence

The association between personality disorders and violence is strongest for ASPD (Hiscoke et al., 2003). ASPD was found to be most associated with risk of violence in the UK national household within the general population, with a relatively modest risk estimate of 6.1 (Coid et al., 2006). In the general population, ASPD is also independently associated with violence in both men and women in the UK national households, but the odds ratio of violence in women with ASPD (4.76) was substantially higher than their male counterparts (2.53) (Coid et al., 2017).

ASPD is strongly associated with a history of previous convictions among patients admitted to secure forensic psychiatry services. These convictions included all violence (both major violence and minor) and rape, buggery and other sexual offences, with risk estimates ranging between 2.57-2.96 (Coid et al., 1999). ASPD was found to predict violent and sexual reoffending among male offenders in the UK prisoner cohort study, including offenders who did not present with a high psychopathy score (Coid et al., 2008). ASPD is also strongly associated with the highest rates of violence towards children, intimate partners and strangers, compared with other psychiatric disorders in the general population (Coid, 2006), and 26% of participants with ASPD self-reported violence in which the victim was injured during the last five years (Coid et al., 2006). This study also

found that ASPD was associated with repetitive violence, victim and perpetrator injury, and violence when intoxicated. (Coid et al., 2017).

Yu et al. (2012), in their systematic review, conducted a synthesis of the association of PD and violent outcomes by measuring PD samples compared with the general population. The findings showed a substantial risk of violent outcomes in which personality disorder is associated with antisocial outcomes and repeat offending, but the risk appears to differ by personality category and gender, regardless of whether individuals are offenders or not. Additionally, the authors highlighted that offenders with ASPD are highly associated with violence, showing a high-risk estimate of 12.8. However, studies also indicated that an ASPD diagnosis alone did not account for all individuals presenting with criminal and antisocial behaviours, or lifestyle deviances (Hare & Hart, 1993, 1999; Hare, 2003).

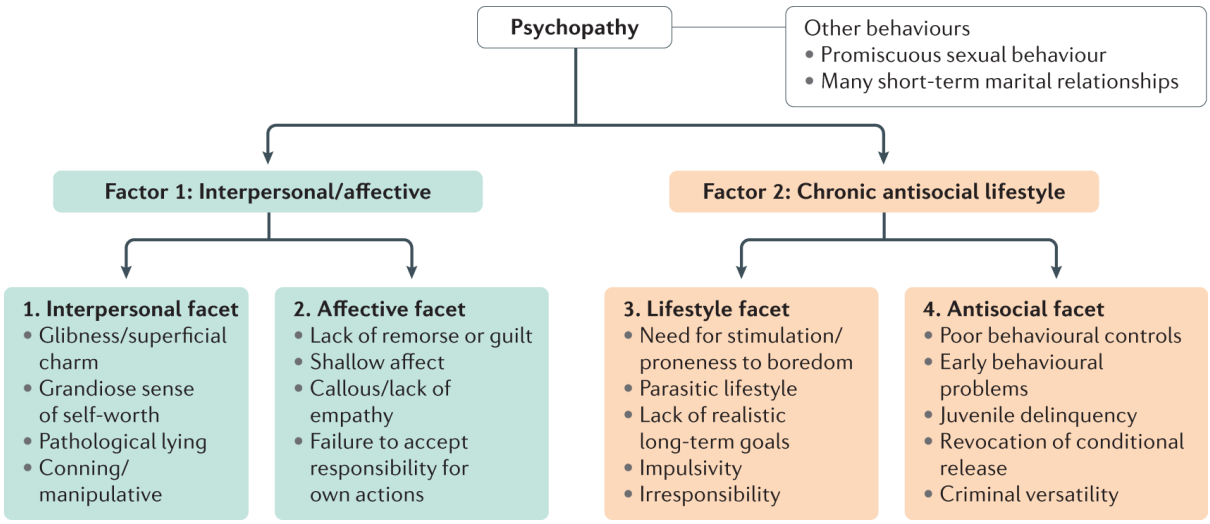
1.7 Psychopathy

Psychopathy (P) is conceptually similar, but has an alternative construct to ASPD. The similarities and differences between these two concepts have been the focus of significant theoretical and empirical research. Psychopathy is based on a construct developed by Harvey Cleckley and Robert Hare (Cleckley,1941, 1976; Hare, 1968). It is not classified as a mental disorder within the DSM-5, whilst the ICD highlights the personality traits associated with psychopathic pathology (Ogloff, 2006).

Psychopathy can be assessed through clinical and self-reported diagnostic tools, particularly the Psychopathy Checklist-Revised (PCL-R; Hare 1991, 2003, 2007). An individual is diagnosed with psychopathy when meeting the PCL-R cut-off score of 30 in the US or 25 or more in Europe (Cooke & Michie, 1999). Among the population, psychopathy is less prevalent than ASPD. Freeman, Samson and Palk (2011) estimated that 1% of the general population has indicated the presence of psychopathy. Coid et al. (2009b) estimated the prevalence of psychopathy, using a PCL-R cut-off score of 30, is 7.7% in men and 1.9% in women, among offenders in the UK. Psychopathy was shown to account for 18.7% of violent incidents among the UK household population, despite showing a low prevalence rate of 2.1% (Coid & Yang, 2011). Nevertheless, the exact prevalence remains unknown due to limitations in epidemiological studies, which often have unrepresented sample size and low base rates of psychopathic traits (Hall & Benning, 2006).

Figure 1.3

Factor 1 and Factor 2 psychopathy



Note. Adapted from De Brito, S. A., Forth, A. E., Baskin-Sommers, A. R., Brazil, I. A., Kimonis, E. R., Pardini, D., Frick, P. J., Blair, R., & Viding, E. (2021). Psychopathy. *Nature reviews. Disease primers*, *7*(1), 49. https://doi.org/10.1038/s41572-021-00282-1

As illustrated in Figure 1.3, psychopathy is recognised as a two-dimensional disorder, consisting of factor 1 traits (affective/interpersonal), which are characterised by emotional dysfunction, reduced guilt, empathy, and attachment to significant others; and factor 2 traits (lifestyle/antisocial), which are related to antisocial behaviour, impulsivity, and poor behavioural control. A psychopathic individual is more likely to demonstrate primary psychopathy characteristics including callousness, shallow affect, pathological lying, manipulative behaviour, and fearless dominance; whereas secondary psychopathy reflects an environmentally acquired

disturbance such as irresponsibility, impulsivity, substance misuse, and criminality. As a result, sociopathy is associated with mood dysphoria and dysregulation (Hare & Neumann, 2005).

The presence of ASPD + P was once considered as a severe personality disorder (Blackburn, 2007; Coid, 2009). Psychopathy is less prevalent than ASPD; it was found that about 10-32% of prisoners with ASPD meet the criteria for an additional diagnosis of psychopathy (Coid et al., 2009a; Coid & Ullrich, 2010; Ogloff, 2006). Ogloff et al. (2016) found that, out of a sample of secure forensic patients, 65% of those high in psychopathy had an ASPD diagnosis, whereas only 5.5% of ASPD patients scored highly in psychopathic traits. These findings showed that ASPD and psychopathy are not directly correlated.

Psychopathy is also associated with significantly increased risk of violence. Individuals with ASPD and -P usually commit reactive aggression or impulsive violence, while those with ASPD and +P usually commit both reactive and proactive aggression, but also instrumental or premeditated aggression (Blais et al., 2014). Available evidence suggests that psychopathy has a substantial impact on violence in both the general and forensic populations (Azevedo et al., 2020; Blais et al., 2014; Gregory et al., 2012; Walsh et al., 2009). The differences between psychopathy and other personality disorders are illustrated below in Figure 1.4.

Figure 1.4 Differences between psychopathy and other personality disorders

Subtype	DSM-IV-TR trait	PCL-R trait
Antisocial personality disorder	Engagement in illegal acts Deceitfulness, conning Impulsivity, failure to plan ahead Lack of remorse	Criminal versatility Pathological lying, conning Impulsivity, lack of goals Lack of remorse or guilt
Borderline personality disorder	Unstable interpersonal relationships Impulsive sexual behaviour Difficulty controlling anger	Many short-term marital relationships Promiscuous sexual behaviour Poor behavioural controls
Histrionic personality disorder	Shallow emotions	Shallow affect
Narcissistic personality disorder	Exploits others for own gain Lacks empathy Grandiose sense of self-importance	Manipulative Callous, lack of empathy Grandiose sense of self-worth

Note. Adapted from Sarkar, S., Clark, B., & Deeley, Q. (2011). Differences between psychopathy and other personality disorders: Evidence from neuroimaging. Advances in Psychiatric Treatment, 17(3), 191-200. doi:10.1192/apt.bp.107.004747

1.7.1 ASPD and Borderline Personality Disorder/Emotional Unstable Personality Disorder

Comorbidities in people with personality disorders are common (Blackburn & Coid, 1999; Carroll, 2009; Stuart, 1998) and are of particular importance when assessing and managing the risk of violence in these individuals. Esbec and Echeburúa (2010) highlighted that most patients who come to the attention of clinical and criminal justice involvement have a comorbid condition (Coid et al., 2010). It was shown that among a sample of community residents who were diagnosed with personality disorders, residents who had ASPD and BPD were more likely to have a conviction for violence and a custodial sentence than residents who had other PDs. The results showed that residents who were more affectively impulsive were

more likely to have a history of aggression and "psychopathy" (P) factor (Howard, 2008). González et al. (2016) reported that interpersonal violence of an impulsive or affective type, particularly serious violence leading to injuries and repetitive violence, can be better explained by comorbidity i.e. BPD comorbid with substance misuse, anxiety and ASPD.

1.7.2 ASPD and Other PDs

Available studies have shown that ASPD and Other PDs were prevalent in patients with BPD, followed by narcissistic and histrionic personality disorders (e.g., Fossati et al., 2000; Howard Huband, & Duggan, 2012; Ritter et al., 2010; McGlashan, 2000; Sher et al., 2015). It would appear that, in clinical populations, ASPD co-morbid with Cluster B PD are relatively more common than in Cluster A and Cluster C PDs. Available studies showed that the comorbidity of ASPD and Other PDs were prevalent in offenders with schizotypal, schizoid personality disorder and BPDs (Blackburn & Coid, 1999; Coid & Ullrich, 2010; Howard et al., 2014; Semiz et al., 2008; Warren et al., 2002). It would appear that ASPD comorbidity with Cluster A and Cluster B PDs are both equally common in offenders. Johnson et al. (2000) demonstrated that individuals diagnosed with a Cluster A and Cluster B personality disorder are three times more likely to engage in violence during adolescence which may account for the increased risk of violence that persists into early adulthood compared to individuals without personality disorders.

1.8 ASPD and substance misuse

Despite the prevalence of personality comorbidities, there is a gap in the literature relating to the relationship between comorbid personality disorders and violence in offenders with ASPD. It is clear that comorbid personality disorders could be substantially impacting the levels of violence in society, which itself is recognised as a worldwide problem. It has been shown that individuals with personality disorders with ASPD and other PDs were more likely to engage in violence resulting in victim injury and higher frequency in the community (Freestone et al., 2012; Schug et al., 2007).

1.8.1 Impact of comorbidity of ASPD and substance misuse

A growing body of research suggests that ASPD contributes to an increased risk of violence and substance misuse (Regier et al., 1991; Steadman et al., 1998). Krueger and Markson (2006) presented a model of psychopathology to identify the covariance among SU and ASPD, and posited that a single underlying externalising factor accounts for this complex aetiological relationship. In terms of mechanisms, it is thought that there is a greater predominance of impulsivity in ASPD, which is also considered as a vulnerability factor for SU (Goretti et al., 2000). Theoretically, it can be challenging to determine whether antisocial traits such as impulsivity and irresponsibility result from Substance Use Disorders (SUD) or ASPD, although it is possible that ASPD can be diagnosed when SUD is present. However, Howard and McMurran (2013) suggested that personality pathology is moderated by the effects of substance misuse

during adolescence, which also accounts for the impairments in brain development. Howard et al. (2012) suggest that the impairments in brain development, in conjunction with personality traits, increase the likelihood of antisocial behaviour in later adult life.

1.8.2. Impact of co-morbidity of personality disorders in individuals with substance misuse

In terms of the mechanism, the behavioural disinhibition pathway indicates an inability to constrain impulses to behave in socially undesirable ways. Research suggested that traits such as high antisociality and impulsivity, along with low-harm avoidance, are associated with a higher risk of substance misuse. It was suggested that the behavioural disinhibition pathway might account for the comorbidity of ASPD, BPD, and/or SUD. (Verheul, 2001; Verheul & van den, 2000).

Furthermore, Parmar and Kaloiva (2018) and Verheul (2001) highlighted the stress-reduction pathway, indicating that the onset and course of substance addiction is the result of individuals' biological and psychological vulnerabilities. Therefore, individuals with high scores on neuroticism traits, anxiety, and stress reactivity are more prone to substance misuse during stressful life events as part of self-medication. It was suggested that the stress reduction pathway might account for comorbidity of avoidant, dependent, schizotypal, BPD and/or SUD (Verheul, 2001). Additionally, the reward sensitivity pathway illustrated greater misuse of substances among

individuals with high novelty-seeking, reward-seeking, or extraversion behaviours as they are motivated by the positive reinforcing properties within the substance(s). It was suggested that the reward sensitivity pathway might account for the comorbidity of histrionic and narcissistic personality disorder and/or SUD (Verheul, 2001).

A systematic review conducted by Goretti et al. (2000) confirmed that Cluster B PD is mostly related to substance misuse, although there is a high prevalence of Cluster C PD for alcohol use. In terms of the gender difference, men with ASPD were found to be three to five times more likely than women to abuse substances. Nonetheless, it was found that women with ASPD tend to abuse substances more severely than men, and are also more likely to suffer from Anxiety Disorders or Depressive Disorders (Compton et al., 2005).

Available studies have shown that the comorbidity of ASPD, SU and Other PDs was prevalent in patients with BPDs (e.g., Black et al., 2016; Howard et al., 2008; 2021; Newhill, 2009). The majority of studies have also shown that ASPD was prevalent in SU abusers with BPD (Barral et al., 2006; Cereo et al., 1999; Darke et al., 2004; Grilo et al., 2002; Ross et al., 2003; Tikkanen et al., 2009). However, it is noted that only BPDs were widely investigated in the available studies.

In addition, it is suggested that the comorbidity between PD, SUD and mental illness further complicates our understanding of this relationship (e.g., Ogloff et al., 2015). The authors suggested that patients with comorbid mental illness and SUD, as well as those who have an additional diagnosis of ASPD, are responsible for more serious and frequent offending than those with mental illness alone. The findings oppose a dichotomous outcome of mental illness, substance misuse and violent outcomes.

1.9 Aims and hypotheses

The comorbidity of ASPD with other PD is remarkably common, it appears the comorbidity, both between ASPD, other PDs, is the key to understanding the association between personality disorder and violence, as well as the mechanism to mediate it. Additionally, comorbid substance misuse is also commonly seen in individuals with personality disorders within forensic settings. Considerable evidence suggests that the risk of violence is further elevated by the comorbidity of personality disorders and SU. It appears that SU is another critical mediating mechanism between personality disorders and violence. However, it is also naive to make this assumption in the absence of sufficient research.

The impact of these comorbidities has been under-researched to date, to the author's knowledge, the impact of ASPD, Other PDs and SU on violence is yet to be consistently drawn. However, this is of particular importance when assessing and managing risk of violence in clinical settings, especially

forensic settings. Considering the complexity of treatment in offenders who have comorbid personality disorders and substance misuse, it may also be useful to develop empirical evidence to inform the practice of psychological practitioners and others working within forensic services, particularly offenders' treatment needs and responsivity issues. Thus, the combined area of ASPD, Other PDs and SU was identified as the key focus in this thesis.

The primary purpose of this thesis is to expand understanding of the cumulative effect of meeting criteria for more than one personality disorder, specifically comorbidity with ASPD. This thesis aims to investigate the comorbidity of ASPD and SU with Other PDs, and determine what patterns were most associated with violence and mental health outcomes.

Chapter 2

Comorbidity of Antisocial Personality Disorder and substance misuse with other personality disorders: a systematic review of prevalence and associations with violence and mental health outcomes

Abstract

Background Personality disorders are highly prevalent in forensic populations. Substance misuse and violence in people with Antisocial Personality Disorder (ASPD) is well researched. However, one underexamined aspect is the role of comorbidity of personality disorders with ASPD. The study aims to systematically review all available literature on the prevalence of comorbidity of personality disorders in individuals with ASPD and with/without substance misuse (± SU) and associations with violence and mental health outcomes (suicidality, self-harm, depression, and anxiety).

Method Primary studies reporting a prevalence of other personality disorders comorbid with ASPD ± SU in adult populations were identified from a total of eight databases. PRISMA guidelines were used to screen relevant articles. Clinical measures such as structured clinical interviews and validated measures were highlighted. A total of 41 studies were

identified including cohort, case-control and cross-sectional design. A narrative synthesis of 20 studies and quality assessment were reported.

Results The comorbidity of ASPD + borderline personality disorder (BPD) ± SU is the most commonly researched theme in empirical studies. The comorbidity of ASPD + BPD ± SU is the most prevalent comorbid personality disorders in clinical and forensic samples and is associated with serious violent outcomes in forensic settings. This comorbid pattern is also associated with aggression, convictions, severe violence and reoffending, and suicidality but not with self-harm, depression and anxiety.

Conclusions Existing evidence suggests that the comorbidity of ASPD + BPD ± SU is the key to understanding the mediating mechanism between personality disorder and violence. In particular, evidence showed that such comorbidity appears to be associated with a substantial severity of violence. However, an observable link between the comorbidity of ASPD + BPD ± SU and negative mental health outcomes was not established. It is possible that personality pathology which involves the cumulative effect of meeting criteria for more than one personality disorder may act as a modifier of violent outcomes and/or treatment responses.

2.1. Introduction

Personality disorders are pervasive, persistent, and maladaptive patterns of internal experiences and behaviours, with an enduring impact on an individual's ability to function. As outlined in Chapter 1, they are also complex and controversial. Clinicians use the two major diagnostic classification systems: the Diagnostic and Statistical Manual of Mental Disorders and the International Classification of Diseases. However,
the assessment of personality disorders can be challenging in routine clinical practice (Bornstein, 2011; Clark, 2007). There is limited consensus about the best approaches to formulation and management. Given their prominence in clinical settings, especially forensic settings, they are a crucial consideration in clinical practice.

2.1.1 Other personality disorders and violence

The association between ASPD and violence has been highlighted in Chapter 1, and there is a wealth of current knowledge regarding ASPD, substance misuse and violence in people who have offended. Other PDs were also shown to be associated with violence. For example, Borderline Personality Disorder (BPD) was associated with arson at first admission and arson offences among forensic patients admitted to secure forensic psychiatry services, with risk estimate ranging between 2.23-3.76 (Coid et al., 1999). BPD was shown to be associated with intimate partner violence, self-injurious behaviour, property damage, disorderly conduct, public

intoxication, and murder such as familicide and serial killing (Coid et al., 1999; Oumaya et al., 2008; Sansone & Sansone, 2012). BPD is frequently associated with the perpetrator role of intimate partner violence, particularly where there was severe violence resulting in injuries and repetitive violence. The association appears to be linked with comorbid SU, anxiety and ASPD, as anger and impulsivity-borderline personality disorder criteria, which were independently associated with severity, repetition and injury; whilst suicidal behaviours and affective instability were not associated with violence (González et al., 2016). It was reported that borderline personality traits, namely anger, impulsivity and avoiding abandonment, were found to be associated with violence, whereas identity disturbance and affective instability were not associated with violence (Sarkar, 2019). It was suggested that ASPD was associated with an impulsive type of appetitively-motivated violence, whilst BPD was associated with an impulsive type of aversively-motivated violence (Howard, 2009).

Narcissistic personality disorder was found to be associated with all types of violence, namely indirect, direct, displaced, physical, verbal aggression and bullying, as well as reactive and proactive aggression. Provocation appears to be the key moderator between narcissism and aggression across all ages, gender and cultural groups, highlighting that narcissistic individuals who are sensitive to criticism are prone to engage in provoked aggression (Kjærvik & Bushman, 2021).

Narcissistic personality disorder was also found to be associated with intimate partner violence among the UK national household population (Coid et al., 2017), and criminal and violent behaviours in female prisoners (Warren & South, 2009). It was also suggested that people with narcissistic personality disorders tend to commit severely violent offences disproportionately. Female prisoners diagnosed with narcissistic personality disorders were eight times more likely to be convicted of a violent offence, including homicide, than female prisoners with other PDs (Warren and South, 2009). Lowenstein et al. (2016) reported that pathological narcissism and low levels of victim empathy (features of psychopathy) were linked to the increased risk of serious violence. However, the evidence of narcissistic personality disorder traits as a relevant risk factor for violence remained unclear (Logan, 2009).

Paranoid personality disorder was found to be associated with violence, particularly its severity and frequency, after controlling the effects of other psychotic-like experiences and comorbid SU (Coid et al., 2016) and repetitive violence and violence when intoxicated (Coid et al., 2017). Paranoid personality disorder was also found to be associated with offending behaviours such as reactive aggression, pre-emptive threats, stalking and sexual violence (Bouthier & Mahé, 2019; Carroll, 2009). In a meta-analysis conducted by Bettencourt et al. (2006), the personality feature of high rumination (e.g., paranoid ideation) was associated with

provoked aggression, suggesting that individuals with cognitive distortion (thinking and perception) have a low inhibitory threshold when feeling provoked. It was suggested that domestic violence, in relation to suspiciousness about fidelity of intimate partners, is prevalent in individuals with paranoid personality disorders. Carroll (2009) highlighted the pathways to violence in paranoid individuals, in the context of cognitive deficits, poor affect regulation and fragmented self-esteem and jealousy in relation to social status.

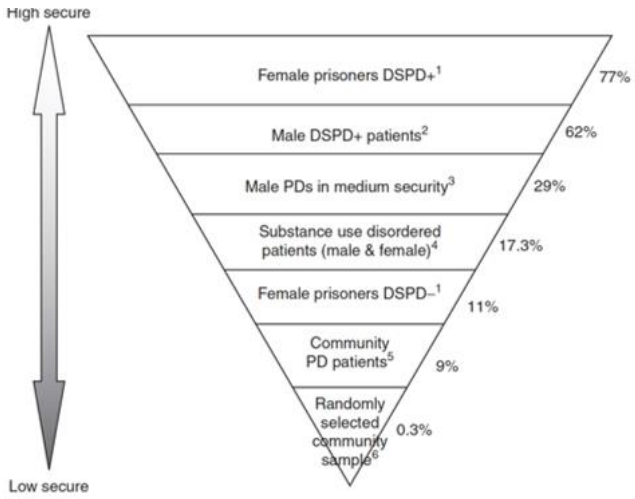
Overall, there is established evidence that Cluster A and Cluster B PDs are associated with violence in forensic populations (Apostolopoulos et al., 2018; Coid, 2002; Esbec & Echeburúa, 2010; Lowenstein et al., 2016; Roberts & Coid, 2010; Warren et al., 2002; Warren & South, 2009; Virdi & Trestman, 2015). However, not all personality disorders are associated with violence. For example, histrionic personality disorder, avoidant and dependent personality disorders, or Cluster C PDs have demonstrated contrary evidence. One study examined a sample of community residents by analysing their personality and criminal history features associated with ASPD and BPD. Results showed that obsessive-compulsive personality traits were inversely related to criminal history variables (Howard, 2008). However, avoidant personality disorder was commonly found in males who assaulted a female spouse (Dutton et al., 1997; Hart, Dutton & Newlove, 1993).

A national male prisoner study in the UK conducted by Roberts and Coid (2010) examined the associations between offending and personality disorders. The results showed that, within Cluster C PDs, avoidant personality disorder was associated with criminal damage, but negatively associated with firearm offences; obsessive-compulsive personality disorder was associated with firearm offences; and dependent personality disorder was associated with firearm offences and violence, but negatively associated with criminal damage. A study conducted by Laajasalo et al. (2013) examined 593 homicide cases among offenders in Finland, and reported that 1 in 21 had a Cluster C PD. It was found that offenders who committed homicide had a shorter criminal history than their other offender-counterparts; however, Cluster C PDs were very rare, although not non-existent among homicide offenders.

2.1.2 Prevalence of comorbid personality disorders

The comorbidity between personality disorders is relatively common, both among themselves and with other mental health disorders, in the context of violence. For instance, individuals may present with more than one type of personality disorder in both general and forensic populations, such as ASPD comorbid with BPD (e.g., Howard et al., 2013; 2014). The exact prevalence is unknown, however Duggan and Howard (2009) indicated that the prevalence of ASPD and BPD are prevalent in clinical and in a forensic population, with a figure of 11-77% and 9-62%, as shown in Figure 2.1 below:

Figure 2.1 *Prevalence of antisocial and borderline personality disorders in clinical and forensic population*



The co-occurrence of antisocial and borderline PD obtained in samples at different levels of security. **1** Data from the Prison Cohort Study (Coid *et al.*, 2007), courtesy of Laura Bell; **2** Unpublished data from Peaks Unit, Rampton Hospital, UK; **3** Unpublished data from Arnold Lodge medium secure unit, Leicester, UK; **4** Bakken *et al.*, 2004; **5** Howard *et al.*, 2008; **6** Data from the British Household Survey (Coid *et al.*, 2006a), courtesy of J. Coid and S. Ullrich. DSPD+ signifies criteria for DSPD were met. DSPD– signifies criteria for DSPD were not met.

Note. Adapted from Duggan, C., & Howard, R. (2009). The 'functional link' between personality disorder and violence: A critical appraisal. In M. McMurran & R. Howard (Eds.), *Personality, personality disorder and violence: An evidence based approach* (pp. 19–37). Wiley-Blackwell.

All in all, having a cooccurrence of ASPD and BPD does appear to confer a substantial risk of violence, although there may be manifold determinants of how personality disorders interact with other factors, effects in violence or some specific type of offences (Davison & Janca, 2012). Blackburn (2003) examined the cooccurrence of traits in relation to personality disorder comorbidity, and found a strong correlation between personality disorders, psychopathy, and mental disorders, except for substance abuse and psychosis. Despite this, previous studies rarely consider the effect of levels of comorbidity when measuring these outcomes. For instance, Yu et

al. (2012) cited that most personality disorder studies had not examined personality disorders with and without SUD separately. However, substance misuse appears to play a moderating role in violence with men with Cluster B PDs (Armenti et al., 2018; Freestone et al., 2013). Therefore, excluding the substance misuse factors often results in a lack of understanding of how different clusters of personality disorder patterns may exist and may have different effects on outcomes.

2.1.3 Impact of comorbidities on outcomes - what is known so far

Impact of *comorbid personality disorders* on violence

Another related issue is that personality disorders can be comorbid among clusters and between diagnoses, presenting with complex clinical implications (Marinangeli et al., 2000). Robitaille et al. (2017) found that BPD comorbid with ASPD in men was associated with violent offending that manifests in adolescence and across adulthood, as characterised by psychopathic traits and childhood disruptive behaviours. A further study also indicated that the association between psychopathy and personality disorders may extend beyond ASPD and Narcissistic Personality Disorders, and the mechanism may be explained by two functions. Firstly, the elevated levels of interpersonal and antisocial features were associated with paranoid, narcissistic, histrionic and ASPD. Secondly, high levels of antisocial features and low levels of interpersonal features were associated with BPD (Klipfel et al., 2017).

In terms of violence, epidemiological studies also found that serious offences were perpetrated by individuals with a diagnosis of a personality disorder and severe personality disorder. The severity spectrum was assessed by the ICD-11 (Swinson et al., 2021). Coid and Ullrich (2009) found that psychopathic offenders with ASPD demonstrated other comorbid personality disorders, namely- schizoid and narcissistic, severe conduct disorder, elevated adulthood antisocial symptoms, and more violent offending than offenders without ASPD. Volavka (2014) cited that violence is elevated by the comorbidity between BPD, ASPD and SUD, which are common in psychiatric patients.

It is also well documented that substance misuse is highly prevalent in offenders with comorbid ASPD and Other PDs. (e.g., Goldstein et al., 2007; Trull et al., 2010). The behavioural disinhibition pathway, which accounts for the comorbidity between personality disorders such as ASPD and BPD, and substance misuse, is well documented (Verheul, 2001; Verheul & van den, 2000). Comorbidities often stem from manifold mechanisms such as shared genetic factors, shared vulnerability factors, shared environmental influences, or a combination of these factors. It appears that comorbidity, both between different personality disorders and SUDs, is the key to understanding the association, and potentially the underlying mechanisms.

Research suggested that traits such as high antisociality and impulsivity, in addition to low harm avoidance, are associated with a high risk of substance

misuse. Parmar and Kaloiya (2018) and Verheul (2001) indicated that individuals with high scores on neuroticism traits, anxiety, and stress reactivity are more prone to SUDs during stressful life events as a form of self-medication. Furthermore, it is important to highlight that comorbidity may account for this complex aetiological relationship. Additionally, Goretti et al. (2017) confirmed that Cluster B PDs are significantly related to SUDs, although there is a high prevalence of Cluster C PDs for alcohol use. In terms of gender difference, it was found that women with ASPD tend to abuse substances more severely than men and are also more likely to suffer from anxiety disorders or depressive disorders (Compton et al., 2005).

ASPD is also significantly associated with persistent alcohol, cannabis, and nicotine use disorders (Hasin et al., 2011). ASPD, history of substance misuse and previous criminal offences are strong predictors for violence in offenders, as indicated in the risk assessment (HCR-20; Webster et al., 1997). Symptom severity (i.e., age of onset, symptom count, comorbidity) was associated with violence in women with ASPD who suffered from substance abuse and dependence (Lewis, 2011). Coid et al. (2006a) further suggested that risk of violence increases with increasing severity of PD, measured by the number of PD categories, and with co-occurring alcohol dependence. However, avoidant PD was found to be a protective factor. With that being said, ASPD and substance misuse is a strong predictor for a poor prognosis in terms of patients' treatment response and outcome

(Parmar & Kaloiya, 2018) and severity levels of substance misuse (Goldstein et al., 2007).

To the author's knowledge, it appears that the comorbidity of other PDs and substance misuse has received relatively less attention than ASPD. It is also worth considering that aggression, impulsivity, and psychopathic traits are prominent in both ASPD and SUDs, although they are rarely examined collectively. Azevedo et al. (2000) concluded that high levels of impulsivity and comorbid SUDs were not predictors of aggression type (i.e., impulsive aggression and premeditated aggression) in male offenders. Further findings showed that the comorbidity of ASPD, psychopathy and SUDs are moderately correlated with antisocial features, but weakly associated with the affective and interpersonal features (Walsh et al., 2007).

Alcorn et al. (2013) found that ASPD comorbid with SUDs only confers an elevated level of aggression, impulsivity, and psychopathic traits compared with SUD-only and the control samples. Given that only antisocial features of psychopathy are strongly associated with ASPD, the relationship between antisocial features and SUD may not inform the same relationship between ASPD and SUD (Werner et al., 2015). In view of these controversies, the present systematic review will examine the collective underpinnings to the comorbidity between ASPD, other personality disorders, and substance

misuse, and aim to establish evidence that captures its associations with violence and mental health outcomes.

2.1.4 Impact of *comorbid personality disorders* on mental health outcomes

Research has investigated several mental health outcomes in relation to suicidality, self-harm, depression, and anxiety in the general population. Freestone et al. (2012) reported that ASPD and BPD group showed a significantly higher tendency to have an anxiety disorder than ASPD-only group. However, no significant difference in depressive disorder was found when compared with BPD-only group. Howard et al. (2009) also found no significant impact in self-harm between groups. It would appear that personality comorbidities are only linked to anxiety in community samples.

In the clinical population, Black et al. (2016) reported no significant impact in all mental health outcomes among clinical samples randomised to allocated interventions. It would appear comorbid personality disorders are associated with adverse long-term mental health outcomes in psychiatric samples, whilst short-term mental health outcomes were less evident. Darke et al. (2004) found that, among heroin users who had contact with rehabilitation services, users who had ASPD and BPD had significantly higher levels of attempted suicide compared to ASPD-only group. This group also had significantly higher levels of lifetime overdose than BPD-only group. However, the impact was not reported in respect of depression.

The study supported the hypothesis that substance misuse appears to confer an additive risk for comorbid personality disorders.

Yang et al. (2014) reported gender differences in the predictors for personality comorbidities in dependent users of heroin. Among male users, lower educational level, unemployment, unmarried, younger age at first heroin use, previous history of compulsory treatment, larger amounts of heroin used per day, and polydrug abuse during past month before admission, as well as psychiatric comorbidities of lifetime major depressive disorder and BPD were independent predictors for co-occurring ASPD. Among female users, younger age at first heroin use, paranoid personality disorder and BPD were independent predictors for co-occurring ASPD. It would appear that the results in mental health outcomes remain inconclusive. Whilst rates of suicide attempts are likely to be impacted by substance misuse disorders and personality disorder comorbidities, recent suicide and depression are not likely to be impacted. Again, this topic has not been widely studied in general, clinical and forensic populations, which is likely due to the limitations in accessing samples who meet the aforementioned criteria.

On the other hand, individuals with comorbid anxiety and ASPD may experience higher levels of distress, dysfunction, poor quality of life, and suicidal ideation than individuals with just one of these disorders alone. Skodol et al. (1995) indicated that the characteristics of anxiety disorders

with personality disorders included chronicity and low levels of functioning compared with anxiety disorders without personality disorders. Overall, personality disorders appear to have an impact on the clinical severity and prognosis of anxiety and vice versa. Pelissier & O'Neil (2000) reported that it is common for offenders be diagnosed with a comorbidity of substance misuse, depression and ASPD. Fu et al. (2002) found that a shared genetic risk of major depression, alcohol dependence, and marijuana dependence, may largely account for ASPD in men.

Additionally, a comorbidity of personality disorders in Cluster B and Cluster C is also highly prevalent in patients with depression, and is associated with adverse clinical outcomes such as duration of an episode, symptom severity, recurrence of depression, and poor psychosocial functioning (Friborg et al., 2014; Miller et al., 2009). Deliberate self-harm is commonly seen in patients with psychiatric disorders (e.g., affective disorders, adjustment disorders and mood disorders) comorbid with personality difficulties (Ghimire et al., 2014; Haw et al., 2001). Individuals with ASPD are more likely to experience mental health problems such as suicidal ideations and suicide attempts (Goodwin & Hamilton, 2003). Cluster B disorders, especially borderline and histrionic, are reported to have more functional impairment and suicidality (Iketani et al., 2004). It was also reported that comorbid paranoid and BPD predicted suicide attempts, and avoidant personality disorders predicted suicidal ideations (Ozkan &

Altindag, 2005). Alcohol suicide attempts have been found to have more comorbidity, such as drug use, depression and ASPD (Roy et al., 1990).

DSM-5 indicates that individuals with ASPD also experience anxiety and depression, which is consistent with other studies (Goodwin and Hamilton, 2003; Galbraith et al., 2014). Individuals with comorbid ASPD and anxiety disorders were more likely to suffer from depression, substance dependence and suicide ideations and attempts (Goodwin and Hamilton et al., 2003). Yet, the comorbidities of psychiatric disorders and personality disorders have appeared to underpin the mechanisms of some of the shared symptoms, namely impulsivity and emotional dysregulation pathways in ASPD, psychopathy and SUDs.

Finally, there appears to be limited data regarding the prevalence of comorbidity of ASPD and other PDs comorbid with/without SU in epidemiological studies. Previous research suggested that the association between personality disorders and violence may extend beyond ASPD, and the mechanism may be moderated by other PDs and SU. In terms of the clinical implications, personality disorders are historically associated with therapeutic nihilism to prevent hospital admission. Previous studies suggested there is little to no evidence of effective treatment methods for individuals with ASPD (Davidson et al., 2009; van den Bosch et al., 2018; Wilson, 2014). However, an implication of examining ASPD comorbidities would be the impact upon treatment and long-term outcomes. Positively,

some reviews indicated that violent offenders may be treatable (Bernstein et al., 2021; Papalia et al., 2019), although more extensive randomised controlled trials are warranted in order to examine the effect of treatment for specific diagnoses and/or offences.

2.1.5 Aims and objectives

This present systematic review aims to systematically examine, in the general, clinician, and forensic population:

1. The prevalence of comorbidity of other personality disorders with ASPD with/without substance misuse; and
2. The associations between other personality disorders comorbid with ASPD with/without substance misuse, and i) violence and ii) mental health outcomes.

By conducting a systematic review, it may be possible to answer the two specific research questions, as the process would enable the author to generate more reliable and accurate results, which can convey a clear and comprehensive overview of available evidence and allow comparison and contrasting findings. It may also further guide the primary research and clinical practice.

2.2 Methods

2.2.1 Source of literature

A total of eight databases were searched, including PubMed, Medline, Cochrane, Embase, PsychInfo and Web of Science. Searches were conducted via Google Scholar and Digital Access to Research Thesis (DART) Ethesis in October 2021 to capture any further research or grey literature that may have been missed. The author signed up for alerts for the key terms on the databases in order to receive new results matching the search during the thesis write-up period.

After retrieving sources from the above databases, the reference lists of key studies were scanned. Key experts in the field were contacted to retrieve any additional studies, including identifying possible data presented in conferences.

2.2.2 Search strategy

The following cross-referencing was used as search terms and combinations as appropriate, for each database, including an identical combined strategy of free-text strings and subject headings:

Terms for *"Antisocial Personality Disorder"* were anti*social personality disorder OR dissocial personality disorder OR psychopathy OR psychopath* exp*"ANTISOCIAL PERSONALITY DISORDER"/

Terms for *"other personality disorders"* were paranoid personality disorder OR schizoid personality disorder OR schizotypal personality disorder OR borderline personality disorder OR histrionic personality disorder OR narcissistic personality disorder OR avoidant personality disorder OR dependent personality disorder OR obsessive*compulsive personality disorder OR Cluster A or Cluster B or Cluster C or Axis II

Terms for *"substance misuse"* were substance* OR drug abuse OR substance use disorder* OR addicti* OR exp* "SUBSTANCE-RELATED DISORDERS"/

Terms for *"comorbidity"* were comorbidit* OR comorbidit* OR multicomorbidit* OR Multi-comorbidit* OR Cooccuring* OR Co-occuring OR Coexisting OR Co-existing OR exp *COMORBIDITY/ OR exp*MULTIMORBIDITY/

Terms for *"violence"* were violen* OR brutal* OR dangerous* OR torture OR homicide OR murder OR fight* OR attack* OR conflict* OR cruelty OR antagon* OR aggress* OR assault* OR maltreat* OR harm* OR torture OR crim* OR abus*OR exp* VIOLENCE/

"anxiety" were anxi* OR panic OR phobia* OR exp* "ANXIETY DISORDERS"

"depression" were depress* OR exp *DEPRESSION

"self-harm" were self*harm OR self*injur* OR *"SELF-INJURIOUS BEHAVIOR"/

"suicide" were 53nderst* OR exp *SUICIDE/

Finally, the combined search strategy included (((1 AND 2 AND 3) OR (1 AND 2)) AND 4 AND (5i OR 5ii OR 5iii OR 5iv OR 5v))

The search strategy was repeated using the custom range being, the year of publication function in May 2023 and May 2024 respectively, and had not identified any newly published paper relevant to the literature search.

2.2.3 Inclusion criteria

I. Population, or participants and conditions of interest

Any adult aged 18+, and the samples included the general, psychiatric and forensic populations. No restrictions on gender. In cases where the proportion of males/females was not specified, the study was considered representative of a mixed-gender sample.

II. Exposures

Individuals diagnosed with ASPD, other personality disorders. Personality disorders, including probable ASPD diagnoses, were established with validated diagnostic instruments such as DSM and ICD classification, the Structured Clinical Interview or validated self-report measures.

III. Outcomes of interest

Violence is defined as acts of physical aggression directed toward other people, property, or animals, identified by self-report, informant report, formal records, or criminal cautions, charges, or convictions. The review included mental health outcomes (i.e., suicidality, self-harm, depression, and anxiety).

IV. Settings

Primary studies conducted in general, clinical, and forensic populations.

V. Study designs

The review included cohort, cross-sectional and case-control design studies. Only quantitative studies were included.

2.2.4 Exclusion criteria

Studies with only samples under the age of 18 were excluded. Adolescent samples were not included as only a very small percentage of personality disorders were diagnosed in adolescence (Adshead et al., 2012). Studies that did not relate the presence of ASPD and personality disorders were excluded. For instance, investigations of psychiatric comorbidity, physical health problems and organic disorders were excluded. Outcomes outside the scope of the review such as non-physical violence/aggression, bullying, emotional abuse, coercive behaviours, war crimes and cyber violence were excluded. Furthermore, evidence synthesis, opinion papers (e.g., editorials,

commentaries) qualitative studies, and single-case experimental designs were excluded.

2.2.5 Screening process

The author identified studies via database search and screened journals by using the PRISMA flowchart to exclude studies that did not meet the eligibility criteria. Figure 2 shows the systematic review selection process. Studies that include comorbidity of ASPD, other PDs and/or SU in their samples were identified.

The author was the first reviewer who completed the literature selection and data extraction alone although a second reviewer was originally planned to be used in the title/abstract stage. Due to challenges in identifying a second reviewer within the time available for writing up this thesis, a decision not to use a second reviewer was made. Instead, the author's supervisor resolved the conflict about including or excluding the less straight forward publications until agreement was reached. However, it is recommended that if this thesis were to be published in the future, two (or more) reviewers should be used in order to reduce bias or errors in searching, screening and data selection.

2.2.6. Data collection and analysis

Relevant studies were identified from abstracts, and a data extraction list and Mendeley were used to keep track of studies and references. Data were

extracted using a predefined pro forma. The following data items were extracted from each study:

Study (year)

Country of origin

Sample size (total/comorbidity subgroup)

Sample characteristics, Gender, Age

Diagnoses considered (level of measurement)

SU measures (level of measurement), prevalence (if any)

Violence measure (level of measurement)

Mental health measure (level of measurement in anxiety, depression, self-harm, and suicide)

Method for analysis

Findings

Full papers of key findings were assessed according to the selection criteria and specificity and sensitivity. Quality assessment tool STROBE was used. The total possible quality rating ranges from 0 to 22 points were divided by the number of applicable items. The following quality grade was used:

≧85% Excellent

70 to <85 Good

50 to 70 Fair

<50 Poor

A narrative synthesis of the articles, including the association studies, was conducted.

2.3 Results

2.3.1. Included studies

Initial searching identified 1,846 references; 686 duplicates and 684 irrelevant references were excluded after scanning the titles. After reviewing abstracts and full text, 435 did not meet the inclusion criteria. Finally, 41 relevant studies were identified. Out of the 41 studies, 39 studies were identified for aim 1 (the prevalence of ASPD ± Other PD ± SU), and 18 studies were identified for aim 2 (the association between ASPD ± Other PD ± SU, and i) violence and mental health outcomes.

Figure 2.2

PRISMA flow diagram

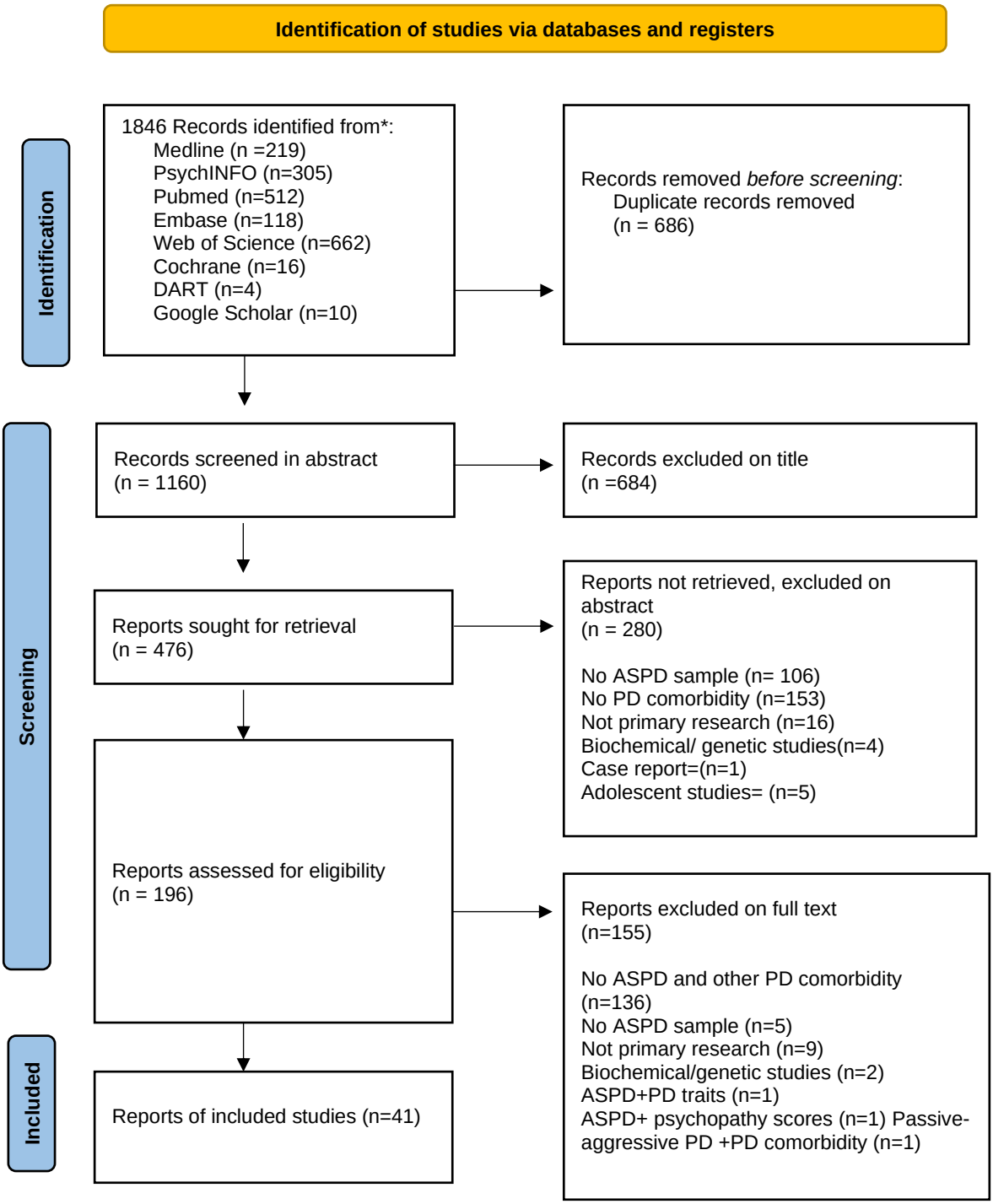


TABLE 2.1

Study Design for the association

Study Design	**Number of studies**
Prevalence studies	**39**
Gender	
Males	9
Females	2
Mixed	28
Sample population/setting	
Offender setting (prisoner and forensic patients)	11
Psychiatric setting (inpatient and outpatient)	15
Substance misuse/rehabilitation	4
Community	9
Prevalence of comorbidity~	
ASPD+ Other PD -SU	22
ASPD+ Other PD +SU	13
*Four studies omitted due to insufficient data	
Association studies	**18**
Studies design	
Cross-sectional	11
Cohort	7
Quality assessment	
Excellent	4
Good	10

Fair	4
Poor	0
Problems examined	
Violence	14
Mental health (suicidality, self-harm, anxiety, and depression)	10
*More than one outcome was examined in six studies	

2.3.2. Study characteristics and clinical heterogeneity

Table 2.1 illustrates a summary of information, including sample compositions, methodology and outcomes. Thirty-nine studies reported on a combined sample of male (24.39%), female (7.32%) and mixed (68.26%) (colour code - Male, Female, Mixed). Most studies were conducted in high-income countries, with the majority (n = 21) conducted in the US, 16 studies conducted in seven European countries, two studies from Canada, one from Australia, and one from China.

To examine aim 1), relevant studies also reported on psychiatric patients (n=15), offenders/forensic patients (n=11), community sample (n=9) and substance misuse sample (n=4) (colour coded offender, psychiatric, substance misuse and community). Diagnostic interview or validated self-reported assessment measures were reported in Table 2.2 (Appendix A) and Table 2.3 (Appendix B). Prevalence data were compared to consider the presence or absence of substance misuse in Table 2.4 (Appendix C).

It is not possible to examine the average mean age due to missing data from several studies. All samples included individuals diagnosed with a clinical diagnosis of ASPD and other personality disorder diagnoses using diagnostic interview and validated self-reported tools. As expected, the most used criteria for personality disorders was the DSM, followed by the ICD. The most used interview tools were The Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-II); the Structured Interview for DSM-IV Personality (SIDP-IV); International Personality Disorder Examination (IPDE); and the Diagnostic Interview for DSM-IV Personality Disorders (DIDP-IV). No study reported applying the latest DSM-5 criteria and clinical structured interview measures. All studies that investigated psychopathy used PCL-R.

All included studies were cohort, cross-sectional or case-control study designs. All included studies were dated between 1990 and 2024. Most studies used the convenience sampling method, two studies used volunteer samples (Howard & Huband, 2012; Schug et al., 2007). National representative samples were used in four studies (Freestone et al., 2012, Howard et al., 2009, Howard et al., 2021; and Morey, 1988).

In terms of validity and reliability of assessment tool, several used self-reported only assessment for violence (Dellazizzo et al., 2018; Freestone et al., 2012; Warren & South, 2006) and other mental health outcomes (Cecero et al., 1990; Schug et al., 2007; Yang, 2014). One study did not

clearly define *"criminal justice contact"* (Howard et al., 2021). Treatment-seeking individuals were enrolled in voluntary research programmes or treatments. As a result, their treatment motivation might have an effect on the measurable outcomes (Black et al., 2016; Cecero et al., 1990; Darke et al., 2003; Howard et al., 2009; Yang, 2014).

A number of studies used the data reduction method to identify samples with personality disorder comorbidity. A significant number of studies identified had a small sample size of ASPD + Other PDs less than (n< 50) (Black et al., 2016; Cecero et al., 1990; Freestone, 2012; Howard et al., 2009; Howard et al., 2014; Schug et al., 2007). Three studies used secondary data, namely Black et al. (2016): Study 1 used reanalysed data collected in a randomised controlled treatment trial; Howard et al. (2009) reused data from a previous clinical trial; and Newhill et al. (2009) used data from MacArthur Violence Risk Assessment Study. One study sampled offenders with personality disorders and ADHD (Semiz, 2008). Although cluster analysis is not sensitive to variations in sampling and changes in measures, two studies did not report the raw data regarding ASPD + Other PD comorbidity (Blackburn & Coid, 1999; Dellazizzo et al., 2018).

2.3.3 Prevalence of ASPD + Other PDs ± SU

Prevalence of ASPD + Other PDs - SU

As previously indicated Table 2.2, ASPD and BPD is the most commonly researched comorbidity (n=13), followed by ASPD + narcissistic personality

disorder (n=9); and ASPD + histrionic personality disorder (n=8). With psychiatric patients, studies found that the comorbidity between ASPD and other personality disorders varies between 7-31% in BPD; 7-41% in narcissistic personality disorder; and 12-50% in histrionic personality disorder.

BPD appears to be most prevalent among ASPD patients (14%-60%); followed by narcissistic personality disorder (46%); histrionic personality disorder (7-12%); and paranoid personality disorder (4%) (Fossati et al., 2000; Sher et al., 2015). Among patients with personality disorders, ASPD and other comorbid personality disorders were reported in narcissistic personality disorder (56%); BPD (15-44%); histrionic personality disorder (33%) (McGlashan, 2000; Morey, 1998). The results appear to support that ASPD comorbidity with Cluster B personality disorders are relatively more prevalent than in Cluster A and Cluster C disorders in clinical populations.

Within prisoner samples, studies found that ASPD and other comorbid personality disorders were most prevalent in paranoid personality disorder (26-69%); followed by schizotypal personality disorder (30-56%); schizoid personality disorder (54%). Cluster C personality disorders were less prevalent, with a figure in the range of 5-15% (Blackburn & Coid, 1999; Coid & Ullrich, 2010; Howard et al., 2014; Semiz et al., 2008; Warren et al., 2002). It would appear that Cluster A personality disorders are equally high in personality disorder comorbidity in forensic settings, which is not

surprising. However, it is also noted that most studies only investigated the comorbidity between ASPD and BPD.

In general population, Goldstein (2006) surveyed a representative with ASPD, and found that 11-28% of participants had other personality disorders, with obsessive-compulsive and paranoid personality disorders being the most prevalent diagnoses. Schug et al. (2007) reported that approximately 8% of the community samples had a comorbidity of ASPD and Cluster A personality disorder. It would appear that ASPD and Cluster A and C personality disorders are relatively more prevalent than Cluster B personality disorder in community samples.

Prevalence of ASPD + Other PDs + SU

As indicated in Table 2.3, ASPD + BPD + SU is the most commonly researched comorbidity (n=13), followed by ASPD + paranoid PD (n=2), ASPD + dependent PD (n=2). The same study (Oguz et al., 2014) also investigated ASPD + Other PDs + psychopathy + SU. No research has reported the prevalence of ASPD, psychopathy and substance misuse which is probably due to very low sample size.

Among individuals with ASPD + Other PDs + SU, four studies included substance users as a sample (Barral et al.,2017; Cecero et al., 1999; Darke et al., 2004; Yang et al., 2014). Only two studies compared the prevalence

of ASPD + BPD + SU, and ASPD + Other PDs + SU (Yang et al., 2014; Oguz et al., 2014). Substance use diagnoses such as Substance Use Disorder (SUD), Alcohol Use Disorder (AUD) and Drug Use Disorder (DUD) were used to measure substance misuse in six studies. One study included current and lifetimes substance use disorders (Oguz et al., 2014). Polydrug use and frequency of heroin use were measured in Darke et al.'s (2004) study. Five studies did not include the raw data of PDs + SU comorbidity, either by calculating them separately or including the number of substance users as the total sample size.

In the clinical population, only BPD has been broadly studied, with research showing a figure varying between 2%-25% of patients having a comorbidity of ASPD + BPD + SU (Black et al., 2016; Howard et al., 2021; Howard et al., 2009). Newhill (2009) found that 33% of patients with BPD had a comorbidity of ASPD and SU. Only one study examined other personality disorders in patients with ASPD and SU, and reported highest prevalence in paranoid PD (32%), followed by BPD disorder (19%), schizotypal PD (19%), whilst other personality disorders fell between the range 0-4% (Oguz et al., 2014). Among substance abuse individuals, available studies have only focused on examining ASPD, BPD and SU comorbidity and reported prevalent rates of 4-38% (Barrel et al., 2017; Cereo et al., 1999; Darke et al., 2004; Grilo et al., 2002; Ross et al., 2003).

One study provided data on paranoid PD (12%) and avoidant PD (13%) (Yang et al., 2014). In forensic population, again there is limited data available, although Black et al. (2016) reported that 69% of offenders had ASPD, BPD and SU comorbidity. Tikkanen et al. (2009) reported that 25% of forensic patients had ASPD, BPD and alcohol problems. Although substance misuse disorders comorbid with ASPD and BPD appear to be more common in clinical and forensic populations, there is limited research in respect of other personality disorders in the general population; this may be explained by the scarce available data related to community samples meeting these criteria. In the general population, Freestone et al. (2012) reported that less than 1% of the general population had ASPD, BPD and SU.

Table 2.5

Summary of from prevalence studies

STUDY	ASPD + BPD	ASPD + BPD + SU	ASPD + NPD	ASPD + HPD	ASPD + PPD
Black et al. (2016) study 1	68.7%	30.21%-38.3%			
Ogzu (2014)		18.8%			32.4%
		39%			63.6%
Yang (2014)		31.5%			12%
Sher (2015)	60.37%		45.51%		
Westen et al. (2006)	30%		40.7%	50%	
Fossati et al. (2000)	14.4%				3.7%
Howard et al. (2015)	44%				
Coid and Ullrich (2010)	41.8%			1.4%	
Blackburn and Coid (1999)	24.59%		22.56%		
Morey (1988)	44.4%		55.6%		

offender	psychiatric	substance misuse	community

Studies showed that ASPD and BPD co-occurred at a rate of 14-60%; and ASPD and narcissistic PD co-occurred at a rate of 23%-56%. However, more evidence on the comorbidity of the ASPD and narcissistic PD in clinical or forensic populations is required. Table 2.6 below summarises the current findings in terms of the most prevalent patterns from available studies in clinical, forensic and general populations.

Table 2. 6

Population	Most prevalent patterns	
Clinical	ASPD + Cluster B	ASPD + BPD + SU*
Forensic	ASPD + Cluster A	ASPD + BPD + SU*
General	ASPD + Cluster A/ Cluster C	Inconclusive ^

**ASPD + BPD + SU as the most prevalent pattern in clinical and forensic populations*

^ *Inconclusive results due to insufficient data*

2.3.4 Violence outcomes -findings

Table 2.7 (Appendix D) illustrates the studies which examined violence outcomes associated with ASPD **±** Other PD **±** SU. As expected, the definition of violence varied between studies, most included violent offending (e.g., offence severity, versatility), reconviction and frequency of violence as indicators of violence. However, Freestone et al. (2012) included victim injury as one of the indicators of violence.

Comorbid ASPD and borderline personality disorder and violence

In terms of violent convictions, Howard (2009) found that 50% of ASPD + BPD individuals had violent convictions, and Newhill (2000) found that 88% had engaged in violent and aggressive acts. Howard et al. (2013) found forensic patients with ASPD + BPD took significantly less time to reoffend compared with Other PD groups. The ASPD + BPD group had five times more violent incidents than ASPD-only and BPD-only group (Schug et al., 2007).

In terms of criminality, a significant difference was found in female offenders with comorbid ASPD + BPD + substance dependence, than BPD-only and ASPD-only groups. Overall, violence appeared to be highly associated with ASPD + BPD among individuals in the majority of the studies (Freestone et al., 2012; Howard et al., 2009; Howard et al., 2014; Tikkanen et al., 2009; Newhill, 2009). It was also reported that ASPD + BPD psychiatric patients were 3.5 times more likely to engage in future violence. However, no significant difference in violent convictions was found between ASPD + BPD and BPD-only groups after offenders had enrolled in a treatment programme (Black et al., 2016).

Howard et al. (2013) reported that substance misuse was found to be a significant predictor for a non-violent offences, although the ASPD + BPD group was more likely to have a substance misuse history than ASPD -only, BPD-only and control groups. (Howard et al., 2009). Freestone et al.

(2012) also supported that the ASPD + BPD community samples engaged had significantly higher incidences of substance dependence than BPD - only group, but lower incidences than ASPD - only group. Among those, 46% engaged in substance-related violence. The results of ASPD + BPD ± SU comorbidity patterns and violence can be summarised in the table 2.8 below:

Table 2.8

Population	Most serious violence	
Clinical	ASPD +BPD ~	Inconclusive ^
Forensic	ASPD + BPD	ASPD + BPD + SU*
General	Inconclusive^	Inconclusive

**ASPD + BPD ± SU is associated with violent outcomes in forensic setting*

~ASPD + BPD is associated with violent outcomes in clinical setting

^ Inconclusive results due to insufficient data

2.3.5 Mental health outcomes - findings

Suicidality and self-harm - findings

As illustrated in Table 2.9 (Appendix E), the majority of studies have only examined the associations between ASPD + BPD or cluster B personality disorder with/without SU. Among ASPD + BPD group, no significant differences were found in suicidality and self-harm in a volunteer sample (Black et al., 2016). However, Drake et al. (2004) reported high levels of attempted suicide among heroin users, although no significant differences were found in recent suicide. The authors also reported higher levels of life-time overdose in their findings. Dellazizzo et al.'s (2018) cluster analysis

categorised male offenders into different cluster groups, and found that Cluster B, particularly BPD patients with SUDs, have the most severe psychopathological and suicide attempts characteristics. Only one study had explored self-harm, but did not find any significant differences between groups (ASPD + BPD, ASPD-only, BPD-only and control) (Howard et al., 2009).

Anxiety and depression

Eight studies have investigated anxiety and depression, either separately or within the same study. (See Table 2.9 Appendix E). Among ASPD + BPD group, no significant differences were found in anxiety among offenders enrolled in treatment (Black et al., 2016). However, a significant difference was found between "borderline-antisocial-passive-aggressive" and "antisocial-narcissistic" in male offenders detained in a high secure hospital and prisons, in their history of affective and anxiety disorders (Blackburn & Coid, 1999). However, Freestone et al. (2012) found that ASPD + BPD group showed a higher prevalence of having anxiety disorder than ASPD-only, within a community sample. BPD-only group had the highest prevalence.

Darke et al. (2004) found that ASPD + BPD heroin users did not differ significantly in depression, compared with ASPD-only group. However, significant differences were found in BPD-only and no diagnosis groups. Freestone et al. (2012) did not find such significant differences. Cecero's study (1990) reported no significant difference in depression in substance

abusers who received treatment. Oguz et al. (2014) also found no significant differences in anxiety and depression in male subjects with ASPD with other personality disorders. Substance misuse was found to be significantly higher in the psychopathy group. A gender difference was indicated in the prevalence and correlations between ASPD and other PDs among heroin-dependent users (Yang et al., 2014). It was suggested that history of substance use and other socio-economic factors were independent predictors for co-occurring ASPD in males; whilst paranoid and borderline PDs and history of substance use were independent predictors for co-occurring ASPD in females (Yang et al., 2014).

2.4 Discussion

This review was conducted to examine: 1) the prevalence of comorbid personality disorders with ASPD with/without substance misuse; and 2) the associations with violence and mental health outcomes (suicidality, self-harm, depression, and anxiety).

To the author's knowledge, this is the first review that systematically investigated either of these questions. Previous studies suggested that ASPD and BPD are commonly comorbid, but this has not been established systematically. A theme in this thesis has supported a high prevalence of ASPD + BPD + SU, in both clinical and forensic populations. However, it would be premature to also conclude that ASPD + other Cluster B PDs ± SU are prevalent in clinical and forensic samples. As mentioned in the

results, BPD is the most commonly researched comorbidity, the prevalence rates may be skewed highly against BPD due to the availability of data in existing research. Research on the comorbidity of ASPD + other PDs (i.e., narcissistic, paranoid, histrionic PDs) ± SU are rather scarce, more research will be required in order to appraise the prevalence of ASPD + Other PDs ± SU more reliably. Although ASPD and Cluster C (avoidant, dependent and obsessive-compulsive) PDs were also less commonly researched, it appeared that the prevalence of ASPD + Cluster C PD is significantly lower than ASPD + Cluster B / Cluster A PDs.

Additionally, the exact prevalence of ASPD and other PDs + SU was not precisely clear due to limited available studies investigating all variables. Most studies are considered as clinically diverse therefore a meta-analysis may not be considered meaningful, as the genuine effects may be obscured. It was also felt that the heterogeneous data would be a key concern for completing a meta-analysis due to: i) different outcomes being evaluated; ii) different metric of the same outcome; iii) different study designs; iv) non-randomised studies; and v) data too limited. However, themes from the systematic review can be generated.

2.4.1 Comorbid ASPD and borderline personality disorder and violence

The key findings showed individuals with the comorbidity patterns: ASPD + BPD and ASPD + BPD + SU were more likely to result in violence outcomes in forensic populations as compared with individuals with ASPD and other PDs. The comorbidity of ASPD + BPD were also likely to result

in violence in clinical populations as compared with individuals with ASPD and other PDs. However, the results were not concluded in the ASPD + BPD + SU due to limited research in the clinical and general populations. At this stage, it would be premature to conclude that the association between ASPD + BPD and violence may extend beyond SU. Further research will be required to understand the function link, transactional explanations of co-occurrence, and establish whether violence is moderated by the effects of substance misuse (See Chapter 3 for empirical research).

2.4.2 Comorbid ASPD and other PDs ± SU and mental health outcomes

Studies that investigated suicidality and self-harm among individuals with ASPD + other PD only examined the associations between the comorbidity between ASPD, BPD or Cluster B. Overall, the results were mixed, although the evidence appeared to favour the association in suicidality but not self-harm. A study found that Cluster B, particularly BPD patients with SUDs, had the most severe psychopathological and suicide attempts characteristics. However, only one study had explored self-harm and did not find any significant differences between groups (ASPD + BPD, ASPD-only, BPD-only and control).

Studies that investigated anxiety and depression, either separately or within the same study, had only examined the associations between ASPD + BPD or ASPD + narcissistic personality disorder. Overall, the evidence was contrary in both anxiety and depression. Two studies appeared to

favour the association between anxiety and ASPD + BPD, and ASPD + narcissistic PD; whist two studies did not support the association between anxiety and ASPD + BPD. It was felt that further research will need to examine the impact of ASPD, Other PDs ± SU on mental health outcomes in order to further explain the functional mechanism. (See Chapter 3 for empirical research).

2.4.3 Limitations of studies

Nevertheless, two studies have attempted to overcome the methodological challenges by using cluster analysis in a naturalistic setting, as cluster analysis is not sensitive to variations in sampling and outcome measures (Blackburn & Coid, 1999; Dellazizzo et al., 2018). It is also important to highlight that the comorbidity of ASPD + Other PD appears to be overrepresented in clinical and forensic samples.

There is some evidence of variations in the prevalence of comorbidity of personality disorders with ASPD due to methodological differences such as different study designs and clinical heterogeneity, which may account for the variance. For instance, many papers have failed to address the bias such as small sample size or volunteer sampling. Gender, population/setting, sampling methods may also influence the reliability of the prevalence rates. One of the key challenges may be related to the assessment of personality disorder. Personality disorder diagnostic criteria consist of a combination of specific behaviours, symptoms and traits and

variations. Interviewers used different structured interview tools and self-reported measures; despite being validated, this has further contributed to the variance in the number of diagnoses. Self-report measures also have limitations for individuals who have limited awareness of their own thoughts, feelings and/or behaviour. There are also additional methodological difficulties when addressing the research questions, for instance lack of a control and/or comparison group, non-randomised trials, and publication bias.

Additionally, concurrent comorbidity is a complex matter. It appears that a constellation of personality traits might be the reason for the risk of violence among individuals who presented with personality disorders especially ASPD. On the other hand, individuals with severe personality difficulties are likely to experience substance misuse problems. Cluster B personality represents some core features of psychopathy, characterised by criminogenic-related traits, which is associated with a range of criminal behaviours.

In terms of the mechanism, trait impulsivity and predisposing vulnerability to antisocial and borderline pathologies appear to play an essential role in conferring differential vulnerabilities to aggression and emotional dysregulation, in addition to the environment risk factors. Cluster B is strongly associated with substance misuse, which further supports the notion of externalising aggression. The findings of this chapter may highlight the concerns indicated in Duggan and Howard's (2009) paper, in

that the severity of personality disorder is very complex, and the required temporal precedence has continued to pose longstanding challenges in research.

Although the present study includes findings from cohort, case-control, and cross-sectional design studies, there are several limitations to this review, as the author is the only assessor in the quality assessment, and therefore there may be a lack of inter-rater reliability. The findings have heterogeneity between studies, indicating further difficulties in comparing outcome measures. The results rely on the narrative synthesis; therefore, there is a potential for publication bias on positive findings. Most importantly, personality disorder comorbidities are not commonly being investigated, and studies reach very small sample data after using data reduction to obtain a sample with ASPD and comorbid personality disorders with/without substance misuse problems in a naturalistic setting.

Several studies had differing aims and objectives, again increasing difficulties in synthesising the findings. The definition of violence across different sample groups varied between studies. Some studies dichotomised a continuous variable, which reduced the attenuating reliability (for instance, Y/N for violent convictions). There is a need to highlight the challenges in untangling the distinct personality disorder roles in adverse outcomes, particularly when assessing the causal relationships and subsequent risk. Research also relies profoundly on behavioural construct, and recent interest has grown in other relatable constructs such

as early childhood, trauma, adversity, and poor early attachment, which have an impact on individuals' cognitive and emotional processing. This may also have an influence on the heterogeneity of an individual's developmental trajectory. Future research may benefit from a more uniformed conceptualisation approach, perhaps also taking gender and cultural aspects into consideration.

The presence of comorbid personality disorder diagnoses has, once more, emphasised the importance of holistic approaches. Most treatment programmes for personality disorders have moved towards a transdiagnostic approach. However, it has been proposed that targeted treatment programmes for identified subtypes of personality disorder comorbidity may be beneficial. Traditional interventions have put more emphasis on anger management and emotional regulation. Bateman and Fonagy's (2010) narrative review introduced mentalisation-based treatment for individuals with comorbid antisocial and borderline personality disorders, highlighting the importance of targeting the process of mentalising (with no consideration of the victims' state of mind). Schema therapy, which addresses individuals' maladaptive schematic beliefs and interpersonal patterns, may be an interesting area to consider, as it has demonstrated improved treatment outcomes in a systematic review (Bernstein et al., 2021).

Additionally, the relationship between psychometric assessments and future recidivism may be explored, to assess the usefulness of routinely

using it to identify areas that may have a strong correlation with violent reoffending, particularly among individuals with comorbid personality disorders. There are several reasons for this. For example, existing evidence uses different substance misuse assessment tools to measure substance use, including diagnostic interview and self-reported measures. However, some studies have reported personality disorders with ASPD comorbidity and substance misuse to be associated with a substantial severity of violence, but an observable link is yet to be established in empirical studies

Chapter 3

The impact of comorbid personality disorders with Antisocial Personality Disorder and substance misuse on violence and mental health outcomes in forensic psychiatric patients

Abstract

Background: A specific association between personality disorders and violent offending has been established in forensic settings. Antisocial Personality Disorders (ASPD) are especially linked to violence. However, most studies have not included substance misuse, which is a variable that frequently co-occurs in individuals with personality disorders. This often results in a lack of understanding of what specific patterns of comorbidity may exist and how they may have a different effect on violence and mental health outcomes.

Aims and objectives: To develop a clearer picture of the cumulative effect of multi comorbidities, the study aimed to investigate 1) the prevalence of ASPD ± Other PD ± SU, and 2) the impact of comorbidity of ASPD ± Other PD ± SU on violence and mental health outcomes in forensic patients.

Methods: Clinical data was collected on male forensic patients aged 18-65 years who were in receipt of psychiatric care in a secure hospital. Patients were categorised into four condition groups (independent variables): Group

1) ASPD + Other PD + SU; Group 2) ASPD – Other PD + SU; Group 3) ASPD + Other PD – SU; Group 4) ASPD – Other PD – SU. The two key dependent variables were violence and mental health outcomes. Statistical analyses were used to analyse the prevalence and potential cumulative effect of + Other PDs and + SU in violence and mental health outcomes.

Results:

The key findings of the present study suggest that, when grouping other PDs into cluster categories, ASPD + Cluster B PD was the most prevalent in forensic patients (25%), compared to ASPD + Cluster A PD (2%) and ASPD + Cluster C PD (2%) in forensic patients. The results also showed that the comorbidity of ASPD + Other PD + SU was associated with severe violence namely, convictions, hostage-taking, weapon offences and grave injury. ASPD + Other PD + SU showed a significantly higher number of convictions and weapon offences than ASPD + Other PD – SU. ASPD + Other PD – SU was associated with less serious incidences of violence, fewer incidences of convictions, and mild unreasonable beliefs occurring in nonpsychotic disorder. However, several types of offences/violence such as fire-setting and sexual offending were not associated with ASPD ± Other PD ± SU. Most mental health outcomes were not associated with ASPD ± Other PD ± SU, apart from depression.

Conclusions:

The key findings concluded that ASPD co-morbid with other PDs appear to be linked to incidences of antisocial outcomes, rather than violence outcomes. SU appears to play a moderating role in the severity and frequency of violence. Violence may be better measured by the severity and frequency, rather than the versatility of offences. Overall, the findings consistently suggested that severity of personality pathology and the cumulative effect of SU is possibly linked to the likelihood of violence. However, such effect was not observed in mental health outcomes. It remains unclear whether cumulative effect of ± Other PD ± SU may act as a modifier of mental health outcomes. The results have important implications on treatment responses, as implementing a robust assessment and treatment process which specifically targets the problems associated with the severity of personality pathology and substance misuse would be the key to substantially reducing the likelihood of violence.

3.1 Background

Forensic mental health services are specialist services providing assessment, treatment, and rehabilitation for people with mental disorders who have offended. Up to 69% of these forensic patients are individuals admitted to secure inpatient hospitals, having been diverted from prisons or courts and detained under the Mental Health Act (MHA) 1983, as amended in 2007 (Coid et al., 2001). The admission criteria for specialist services are dependent on factors such as severity of offence, acuity or seriousness of mental illness, forensic history, risk to self and/or others and absence of alternative arrangements (Coid & Kahtan, 2000; Coid et al., 2007). The purpose of forensic treatment is to protect the public and prepare forensic patients for reintegration into the community (De Ruiter & Hilderbrand, 2003). More importantly, a reduction in offending outcomes, namely mortality, readmission to hospital and recidivism, are expected to be addressed when patients are discharged from secure settings (Fazel et al., 2016).

In England and Wales, there are three levels of security – low, medium and high – with a total of just over 7000 beds made available between the NHS, private and charitable sectors (Durcan et al., 2011). There are currently three high secure units (approximately 700 beds), and over 60 medium secure units (approximately 3,500 beds), reaching up to 1000 new admissions each year (Rutherford & Duggan, 2008). Forensic patients are detained for a prolonged period of time (Hare et al., 2018; Völlm et al.,

2018). The average length of stay can be longer than two years in medium security (Shah et al., 2011). A significant proportion of forensic patients have a primary diagnosis of schizophrenia spectrum disorders, with a prevalence of approximately 50-60% (Jansman-Hart et al., 2011; Longdon et al., 2018; Völlm et al., 2017) in secure settings.

3.1.1 Antisocial Personality Disorders in forensic settings and links to violence

As mentioned in Chapter 2, personality disorders are reported to be significantly more prevalent in forensic samples than in community samples (e.g., Fazel & Danesh, 2002). In forensic mental health settings, approximately one-third of forensic patients received a diagnosis of personality disorders during their first admission (Rickett et al., 2001), whereas between 40% and 65% of patients with personality disorders were detained in medium and high security settings (Blackburn et al., 2003; de Ruiter & Trestman, 2006; Harty et al., 2004; Howard, et al., 2013; Völlm et al., 2017).

ASPD, characterised by consistent social irresponsibility with exploitative, delinquent, and criminal behaviours, is linked to major and minor physical violence, sexual offences (e.g., rape), firearm offences and robbery and general recidivism in forensic patients (Coid et al., 1999; Coid et al., 2007). Previous studies showed that ASPD is highly associated with violence in forensic population. An odds ratio of 12.8 was found among individuals with a diagnosis of ASPD in a systematic review investigating personality

disorders, violence, and antisocial behaviours (Yu et al., 2012). ASPD is strongly associated with a history of previous convictions among patients admitted to secure forensic psychiatry services. Individuals diagnosed with ASPD are highly impulsive, they may fail to internalise social conscience and may have a tendency to resort to aggression when faced with inner emotional conflicts (HMPPS/NHSE, 2020).

ASPD is also associated with substance misuse, violent offending and other antisocial outcomes (Dykstra et al., 2015; Gillespie et al., 2018; Golestein et al., 2006; Shepherd et al., 2018; Yang & Coid, 2017; Yu et al., 2012). However, studies indicated that an ASPD diagnosis alone did not account for all individuals presenting with criminal and antisocial behaviours, and lifestyle deviances (Hare & Hart, 1993; 1999; Hare, 2003). Coid et al. (2017) indicated that the severity of personality pathology is linked to the likelihood of violence, although not all personality disorders are associated with violence. It was also shown that whilst ASPD attributed significantly to the manifestation of violence, other personality disorders such as paranoid, obsessive-compulsive, and narcissistic personality disorders also attributed to the manifestation of violence.

3.1.2 Cluster B personality disorders and violence

Other Cluster B personality disorders such as Borderline or emotionally unstable personality disorder, are characterised by difficulties in impulse control and affective dysregulation. This is shown to be associated with

arson at first admission and arson offences among forensic patients admitted to secure forensic psychiatry services, with risk estimates ranging between 2.23 and 3.76 (Coid et al., 1999). It has been suggested that reactive aggression to perceived interpersonal difficulties in relation to sense of abandonment or rejection, and anger behaviour such as fire-setting and breaking rules, which results in containment, are acts of expressing unmet needs (HMPPS/NHSEE, 2020). Borderline personality disorder is frequently associated with the perpetrator role of intimate partner violence. Borderline personality traits, namely anger, impulsivity and avoiding abandonment, were found to be associated with violence, whereas identity disturbance and affective instability were not associated with violence (Sarkar, 2019).

Narcissistic personality disorder, characterised by grandiosity, need for admiration and lack of empathy, is relevant in the understanding of violence and is likely to be associated with ego threat (Lambe et al., 2018). Recent meta-review showed that all three dimensions of narcissism (i.e. entitlement, grandiose narcissism, and vulnerable narcissism) are related to all types of violence, namely indirect, direct, displaced, physical, verbal aggression and bullying, and function of violence, including reactive and proactive aggression. Provocation appears to be the key moderator between narcissism and aggression across all ages, genders and cultural groups, highlighting that narcissistic individuals who are sensitive to criticism are prone to engage in provoked aggression (Kjærvik & Bushman,

2021). Narcissistic individuals are less likely to adhere to social rules and rage outbursts, usually erupting when feeling shame and vulnerability (HMPPS/NHSE, 2020). Narcissistic personality disorder was also found to be associated with criminal and violent behaviours in female prisoners (Warren & South, 2009). It was also suggested that narcissistic personality alone was not frequently associated with serious offending, although female prisoners diagnosed with narcissistic personality disorders were eight times more likely to be convicted of a violent offence, than female prisoners with other PDs. Lowenstein et al. (2016) reported that pathological narcissism and low levels of victim empathy (features of psychopathy) were linked to an increased risk of serious violence. However, the evidence of narcissistic personality disorder traits as a relevant risk factor for violence remained unclear (Logan, 2009).

3.1.3 Prevalence of comorbidities personality disorders

Comorbid personality disorders

Esbec and Echeburúa (2010) highlighted that most patients who come to the attention of clinical and criminal justice involvement have a comorbid condition (Coid et al., 2010), and comorbidities are of particular importance when assessing and managing the risk of violence in these individuals (Blackburn & Coid, 1999; Carroll, 2009; Stuart, 1998). As illustrated in Chapter 2, within clinical patients studies found that the prevalence of ASPD and Cluster B PDs (2-56%) is relatively higher than Cluster A (4-32%) and

Cluster C PDs (7-16%) (Grilo et al., 2002; Howard & Huband, 2012; Ritter et al., 2010; Stuart et al., 1998; Westen et al., 2006; Zanarian et al., 1998; Zanarini et al., 2004). Within forensic samples, studies found that ASPD and other comorbid personality disorders were more prevalent in ASPD and Cluster A PDs (29-69%) than in Cluster B (10-23%) and Cluster C (5-15%). (Blackburn & Coid, 1999; Coid & Ullrich, 2010; Howard et al., 2014; Semiz et al., 2008; Warren et al., 2002). It would appear that Cluster A and Cluster B personality disorders are both somewhat highly prevalent in personality disorder comorbidity, which is not surprising. However, due to statistical heterogeneity and methodological challenges in different study designs, there has been a substantial variability between studies, and the exact median and confidence limit of the prevalence rates were not able to be reliably calculated.

Substance misuse disorders comorbid with personality disorders

In the clinical population, only BPD has been broadly studied, with research showing a figure varying between 2% and 25% of patients had a comorbidity of ASPD, BPD, and SU (Black et al., 2016; Howard et al., 2021; Howard et al., 2009). Newhill (2009) found that 33% of patients with BPD had a comorbidity of ASPD and substance misuse. Only one study, a Turkish study, examined other personality disorders in patients with ASPD and substance misuse, and reported a highest prevalence in paranoid personality disorder (32%), followed by borderline personality disorder (19%), schizotypal personality disorder (19%) and avoidant personality

disorder (12%). Other personality disorders fell between 0-4% (Oguz et al., 2014). However, the sample size (N=100) in the study is relatively small.

In the forensic population, again there is limited data available for comparison purposes, although Black et al. (2016) reported that 69% of offenders had ASPD, BPD and substance misuse comorbidity. However, the authors reported that offenders requiring maximum security were not included, therefore the findings may not be generalised to all forensic populations. Tikkanen et al. (2009) reported that 25% of forensic patients had ASPD, borderline personality and alcohol problems. The study reported that the lack of interrater agreement analysis for the DSM diagnoses may limit validity of the results. Although substance misuse disorders comorbid with ASPD and BPD appear to be more common in both clinical and forensic populations, there is a scarcity of research in respect of the general population. This may be explained by the scarce available data related to community samples meeting these criteria.

3.1.4 Impact of comorbidities on violence

Comorbid Personality Disorders

As illustrated in Chapter 2, the comorbidity of ASPD and BPD are reportedly associated with significantly more criminal offending and convictions than other personality disorders. (e.g., Howard et al., 2009; Howard et al.,

2014). In the clinical population, Newhill (2009) found that psychiatric patients with BPD and psychopathic characteristics were slightly more likely to engage in future violence, whilst patients diagnosed with ASPD comorbid BPD were over 3.5 times more likely to engage in future violence. It was suggested that the shared variance between BPD, ASPD, and psychopathy may account for these results, implying that these constructs are the most predictive of violent behaviour.

In the forensic population, Howard et al. (2009) found that offenders with ASPD comorbid with BPD were significantly more likely to have a violent history and a history of drug problems than the other three comparison groups (rest of sample, ASPD-only, BPD-only). It was found that offenders with comorbid ASPD and BPD showed significantly higher trait anger and impulsivity, history of aggression, and also scored higher on a high order psychopathy factor. Blackburn and Coid (1999), on the other hand, found that among offenders with ASPD and other personality disorder comorbidity, offenders with narcissistic personality disorders had more convictions, and major and minor violence, than offenders with other personality disorders. However, the study has presented with limitations related to the validity and reliability of ASPD diagnosis. Additionally, Tikkanen et al. (2009) found that the risk of recidivistic violence was increased by ASPD, BPD, or ASPD/borderline personality comorbidity, childhood maltreatment and a combination of these. Despite the ambiguity, overall, it appears comorbid personality disorders may confer a substantial risk in violent convictions, severe violence, and recidivism.

Substance misuse disorders comorbid with personality disorders

In contrast, multi comorbidities with substance misuse have appeared to be less well investigated, possibly due to substance misuse being an exclusion criterion in many personality disorder comorbidity studies. However, some studies suggest that violence is elevated by comorbidity between personality disorders and substance misuse (Volavka, 2014). Howard et al. (2013) found that SU was found to be a significant predictor for a non-violence offence, and ASPD + BPD group was more likely to have a substance misuse history than the ASPD-only, BPD-only, and control groups. Howard et al. (2014) also found that this group showed significantly more severe personality pathology, and had a significantly greater severity of violence in their criminal records when compared with males with other personality disorders and community samples with personality disorders. However, the results differed from the research conducted by Freestone et al., (2012), which had shown that the ASPD + BPD community samples, had significantly higher incidences of substance dependence than BPD-only group, but lower incidences than ASPD-only group.

Howard (2021) reported that 10.4% of community samples with ASPD and BPD had past-year criminal justice contact, and after controlling BPD symptoms, criminality remains significantly associated with drug use disorder. The author suggested that the dissocial variant of BPD is associated with substance misuse and criminality. Dellazizzo et al. (2018)

reported that "early-onset violent delinquent" offenders emerged as a severely antisocial and criminal group and displayed high rates of aggressiveness, recklessness, impulsiveness, lack of remorse (Cluster B traits) and Substance Use Disorders. "Early-onset unstable-mentally ill delinquent" offenders emerged as a severely borderline and criminal group, displaying high rates of impulsivity, affective instability-anger, relationship instability and paranoia (Cluster B traits) and Substance Use Disorders. Both cluster groups displayed the most severe psychopathological and criminally violent characteristics. Overall, available data in violence studies appears to have mainly focused on ASPD and BPD. Despite the trend, the link between ASPD and borderline PD comorbidity, with/without substance misuse and violence, may be explained by a higher-order "dissocial-impulsive" factor in individuals with comorbid personality disorders, which is significantly associated with anger, impulsivity, drug/alcohol problems and criminality, including violent criminality (Howard et al., 2008).

3.1.5 Impact of comorbidities on mental health outcomes

Comorbid Personality Disorders

Research has investigated the mental health outcomes in relation to suicidality, self-harm, depression and anxiety. In forensic population, Dellazizzo et al. (2018) found that "early-onset unstable-mentally ill delinquent" offenders had the most severe psychopathological and suicide attempts and anxiety characteristics. It would appear comorbid personality disorders were associated with mental health outcomes in offender

samples. However, the evidence on self-harm and suicidality was limited. Black et al. (2016), on the other hand, had reported no significant differences in anxiety among offenders enrolled in treatment (Black et al., 2016). Again, the evidence on anxiety and depression in both clinical and forensic populations is relatively limited.

Substance misuse disorders comorbid with personality disorders

In the clinical population, Darke et al. (2004) found that, among heroin dependent users who had contact with rehabilitation services, users who had ASPD and BPD had significantly higher levels of attempted suicide compared to ASPD-only group. However, such difference was not observed in incidences of recent actual suicide. This group also had significantly higher levels of lifetime overdose than BPD-only group, though the impact was not reported in depression. The study supported the hypothesis that substance misuse appears to confer an additive risk for comorbid personality disorders. Unsurprisingly, the available data in forensic population is relatively scarce in literature research.

It would appear that the results in mental health outcomes remain inconclusive, whilst rates of suicide attempts are likely to be impacted by substance misuse disorders and personality disorder comorbidities to some extent. The exact mechanism remains unclear as this topic has not been

widely studied in the general and forensic populations. This is likely due to the limitations in accessing samples who meet the aforementioned criteria.

Extensive co-occurrence of personality co-morbidities suggests that a unique condition, is artificially segregated into multiple diagnoses, making it hard to develop a comprehensive understanding of individuals' problems in order to identify specific treatment needs. Additionally, existing research in personality co-morbidities have some substantial methodological challenges that have hampered the findings. Namely, statistical methods, heterogeneous samples, and a paucity of clearly defined outcome variables which may limit the validity and generality of research.

Firstly, small sample size can present particular challenges in the representativeness, particularly within forensic mental health settings. Pedersen et al. (2012) proposed a routine application of prospective power analyses and sample size planning that takes into account the difficulties of recruiting participants. The authors also suggested using multi-site and consortium partnership research, if possible, as collaborative and distributed data helps to increase the sample sizes, increasing the subsequent statistical power. Secondly, available data did not account for all personality disorders systematically, as most studies excluded Cluster A and/or Cluster C PDs electively or entirely, which resulted in an imprecise picture of the prevalence and impact of comorbid personality disorders on various outcomes. Thirdly, the majority of research did not account for the

multimorbidity of substance use disorder, which is also an underexamined aspect in empirical studies. This often results in a lack of understanding of what specific patterns of comorbidity or multi-comorbidity may exist and how they may have a different effect on outcomes. Fourthly, the robustness of personality disorder assessment can be challenging, for instance times of assessment and self-reported measures may influence the findings.

3.1.6 Aims and objectives

The present study aims to examine the prevalence of personality disorder comorbidities with/without substance misuse in a forensic psychiatric setting. It also explored the cumulative effect of substance misuse, which is a variable that frequently co-occurs in forensic patients with personality disorders. It would help to gain an understanding of what specific patterns of comorbidity may develop which may lead to a significant effect on violence and mental health outcomes.

The author investigated three main questions:

1) the prevalence of ASPD ± Other PD ± SU;

2) the association between the comorbidity of ASPD ± Other PD ± SU and violence; and

3) the association between the comorbidity of ASPD ± Other PD ± SU and mental health outcomes.

The study tested the hypothesis that forensic patients who demonstrated personality comorbidities and substance misuse would show a high level of violence and more negative mental health outcomes than patients without additional personality disorder and substance misuse comorbidities.

3.2 Method

3.2.1. Sample

The sample of 289 forensic patients, aged 18-65, was drawn from patients admitted to medium secure units (MSU) and low secure units (LSU) at North London Forensic Service between October 2013 and October 2018. The service is an NHS tertiary forensic mental health service based at Chase Farm Hospital in the London Borough of Enfield, which covers a catchment area of the London Boroughs of Barnet, Camden, Enfield, Haringey and Islington. The service provides treatment to individuals aged over 18 who have a primary diagnosis of mental illness or learning disability and who are liable to be detained under the Mental Health Act (1983). The service has five medium secure male wards and five low secure male wards, in addition to one medium secure female ward and two low/medium secure learning disability wards.

3.2.2 Inclusion criteria

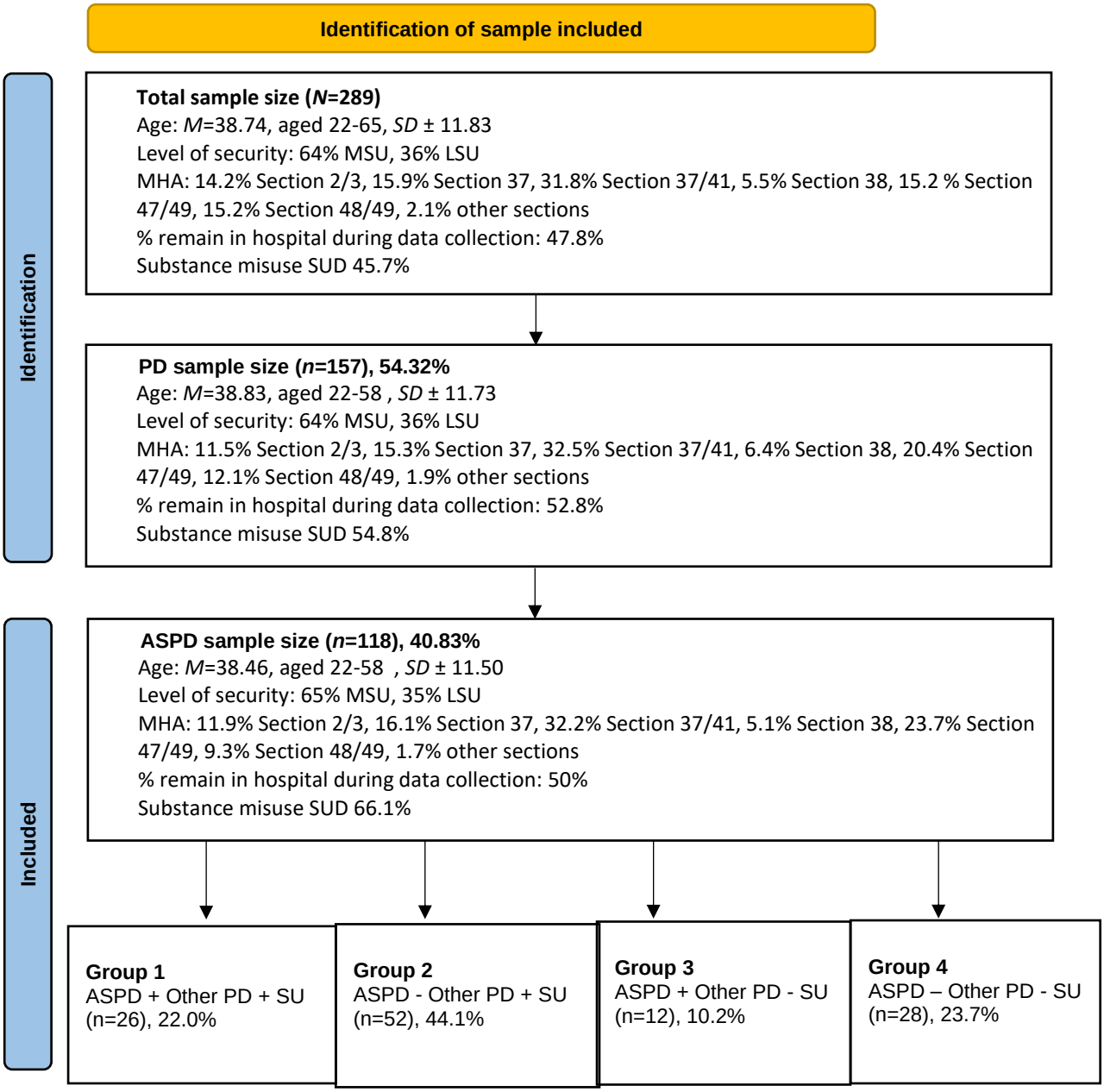
Male forensic patients aged 18-65 years who were in receipt of psychiatric care in a secure hospital.

3.2.3 Exclusion criteria

Patients admitted to the learning disability and female wards were excluded from the study due small sample size, differing epidemiological framework and gender patterns of personality pathology. Patients who had a diagnosis of organic personality disorders were excluded from the PD sample. The sample size flow diagram is illustrated in Figure 3.1.

Figure 3.1

Sample size flow diagram



3.2.4 Design

This study is a retrospective cross-sectional study. The independent variable is related to the sample characteristics (diagnosis/diagnoses). A sample of forensic patients was divided into four groups (exposure/independent variables).

Group 1 - patients with a diagnosis of ASPD and other personality disorders with comorbid substance use disorder (ASPD + Other PD + SU);

Group 2 - patients with a diagnosis of ASPD with no personality disorder comorbidity and with comorbid substance use disorder (ASPD - Other PD + SU);

Group 3 - patients with a diagnosis of ASPD and other personality disorders without comorbid substance use disorder (ASPD + Other PD - SU); and

Group 4 - patients with a diagnosis of ASPD without any comorbidities, or ASPD-only (ASPD - Other PD - SU).

The key dependent (outcome) variable is violence, measured by history of violence, number of criminal convictions; types of violence/offences (i.e. physical/verbal violence, exploitation of others, criminal justice/Multi-agency Public Protection Arrangements [MAPPA] involvement, fire-setting, sexual offending, hostage-taking, stalking harassment, weapon offences, violence/aggression towards adults, violence and aggression toward children, homicide); severity of violence (i.e. minor, significant, serious, "grave" injuries). The secondary dependent variable is mental health

outcomes, measured by mood states (i.e. problems with agitated behaviour expansive mood); cognitive functioning (i.e. problems with cognition, psychotic symptoms such as problems associated with hallucinations and delusions), depression (i.e. problems with depressed mood), unusual beliefs (i.e. strong unreasonable beliefs occurring in nonpsychotic disorder). Other variables, including age and ethnicity, were treated as potential confounding variables, and were co-varied for in analysis, if differing between groups.

3.2.5 Measures

Classifications measures

For the diagnoses of personality disorders, documented diagnosis based on either the DSM (in the first instance) or the ICD (if no DSM diagnoses documented) criteria was used to indicate the presence of personality disorder(s). The information was extracted from hospital records, i.e. RiO clinical coding, clinical reports and The Historical Clinical Risk Management-20, also known as HCR-20 (Douglas et al., 2013).

However, differences are noted between the two in terms of the definition of ASPD. The manner in which the two are referred to is also different, with the DSM-5 using the term ASPD and the ICD-10, Dissocial Personality Disorder (DPD). The DSM-5's predecessor (DSM-IV) was criticised for emphasising anti-social behaviour and criminality at the expense of the

underlying personality structure and interpersonal deficits, which resulted in over-diagnosis within forensic settings whilst simultaneously leading to an under-diagnosis in community settings. Whilst the DSM-5 has attempted to address some of these issues, it is noted that defining a syndrome largely by behaviours considered unacceptable by society poses ethical challenges for psychiatric diagnosis (Yakeley & Williams, 2014). However, the DSM-5 and ICD-10 still differ somewhat, with the DSM-5 having conduct disorder as a prerequisite of ASPD and the ICD-10 retaining its emphasis on the interpersonal deficits of the disorder.

For the diagnoses of substance use disorders, either the DSM or ICD criteria was required to indicate the presence of substance misuse disorders/dependence. The information was extracted from hospital records, i.e., RiO clinical coding, clinical reports, and HCR-20 (Historical item H5) (see Appendix E for the Substance Use Disorder diagnosis in DSM-IV and ICD-10).

Criminal history measures

The Police National Computer (PNC) records were accessed to obtain information regarding previous convictions. Further information was extracted from hospital records, i.e., RiO risk assessment, RiO clustering, clinical reports, and HCR-20 (Historical item H1) and Health of the National Outcome Scales for Users of Secure and Forensic Services (HoNOS-secure).

Mental health outcomes

The relevant information was extracted from hospital records, i.e. RiO clustering and HoNOS-secure.

3.2.6 Ethics and research governance

The researcher accessed data in a single centre (ten secure wards) and was also involved in screening, extracting, and coding to anonymise the data. University sponsorship was granted in July 2018 (Ref 5701854). A research application to the Health Research Authority (HRA) through the Integrated Research Application System (IRAS Project ID: 262492) was approved in May 2019. The protocol was approved by Barnet, Enfield and Haringey Mental Health NHS Trust (BEHMHT) in May 2019 (Protocol number: 19022). (See Appendix E, F and G).

The data collection took place at North London Forensic Service. The Research and Development department (R&D named NOCLOR) and clinical director within North London Forensic Service were also notified of this study. The Caldicott Guardian of North London Forensic Service and Information Governance Manager oversaw the clinical governance and data protection.

A revised protocol and supplementary information were submitted to IRAS, NOCLOR and University sponsors in September 2021 and June 2022 due to changes in thesis title and statistical analysis methods. However, the

research question, clinical characteristics of data, and all independent and dependent (outcome) variables remained unchanged.

To prevent selection bias, the administration team allowed access to the admission records (Retrieval and Tracking of Supplementary Records) between October 2013 and October 2018 and matched the data with Ward Patients List on RiO. The researcher then accessed records of patients (and/or their carer) who consented for their clinical data to be used in the Trust's anonymised research. The informed written consent form for research within NLFS was routinely completed by staff as part of the admission assessment within 12 weeks of hospital admission. The consent forms were then transferred to electric records and stored in Client's RiO record under the "MCA & Information Sharing and consent/ Additional Research information consent/ Further details". The researcher endeavoured to protect the rights of the patients to privacy and informed consent, and adhered to the General Data Protection Act, 2018. The database only collected the minimum required information for the purposes of the study. The data of patients was entered onto the NHS secure network, then transferred to UoN Secure Network. Only anonymous data was transferred. The database was held securely, in a password-protected computer with secure network at NLFS.

Access to the information was limited to the study investigator and any relevant regulatory authorities (see above). Data was not stored or

transferred on memory sticks unless anonymised and password protected. No personal data or medication information was shared with any other person or organisation. The requirements of the GDPR were complied with throughout the research.

3.2.7 Statistical analysis

Analyses were performed using IBM SPSS (version 27.0). A significance criterion of $p < .05$ and two-tailed tests were performed throughout. Categorical comparisons were made using chi-square test or Fisher's exact test. A chi-square test of independence was performed to determine whether there is a significant association between categorical variables (e.g., whether the variables are independent or related). The Fisher's Exact test was performed to determine whether there is a significant association between two categorical variables, when one or more cell counts in 2 x 2 table is less than 5. One-way ANOVA was used to analyse continuous dependent variables. Logarithm (logx) for moderately positively skewed distribution was performed to meet the assumptions of normality. One-way ANOVA was also used to test if the means of two or more groups are significantly different. The Bonferroni post hoc test was used for significant findings. Linear regression was used when one covariate was continuous, or one covariate was categorical. Finally, logistic regression was used to examine the effects of predictor variables. G*power was used for sample size power calculation.

3.3 Results

3.3.1 Characteristics of four comorbidity groups

Initial results showed that, among sampled patients, 22.0% had ASPD + PD + SU; 44.1% had ASPD - Other PD + SU; 10.2% had ASPD + Other PD + SU; and 23.7% had ASPD - Other PD - SU. The demographic and clinical characteristics of the sample are illustrated in Table 3.1.

Table 3.1

Characteristics of patients with ASPD with/without comorbidities, *n*=118

Demographic characteristics				
Age	*M*=38.46	*SD*=11.50	Range 22-58	
		N	%/n (118)	%/N (289)
Ethnicity				
	Asian or Asian British	6	5.1%	
	Black or Black British	60	50.8%	
	Mixed	7	5.9%	
	Not known	1	0.8%	
	Other ethic groups	5	4.2%	
	White Caucasian	39	33.1%	
Hospital detention characteristics				
Level of characteristics	Medium	77	65.3%	
	Low	41	34.7%	
MHA	Section 2/3	14	11.9	
	Section 37	19	16.1	
	Section 37/41	38	32.2	
	Section 38	6	5.1	
	Section 47/49	28	23.7	
	Section 48/49	11	9.3	
	Other	2	1.7	
Comorbid psychopathology				
Other personality disorders	Cluster A	7	5.9%	2.4%
	Cluster B	29	24.6%	10.0%
	Cluster C	2	1.7%	0.7%
	All	38	32.2%	13.1%
Mental disorders	Paranoid schizophrenia	53	44.9%	18.3%
	Bipolar affective disorder	11	9.3%	3.8%
	Schizoaffective disorder	26	22%	9.0%
	Delusional disorder	3	2.5%	1.0%
	Unspecified nonorganic psychosis	5	4.2%	1.7%
	Other psychotic illness	2	1.7%	0.7%
	Other	3	2.5%	1.0%
	No mental health diagnosis	15	12.7%	39.8%
Substance misuse	Any substance misuse disorder/diagnosis	78	66.1%	27%
	Alcohol dependence/alcohol use disorder	48	40.7%	16.6%
	Substance use disorder/drugs/ substance dependence	70	59.3%	24.2%
	Multiple drug use	73	60.2%	25.3%
	Substance problems before 18	93	78.8%	32.2%

Characteristics of patients with ASPD with/without comorbidities, *n*=118

3.3.2 Prevalence of personality disorders in ASPD and forensic patients

Table 3.2

Personality disorder clusters in with/without comorbidities

	Yes		No		Unadjusted Odds ratio	95%	CI	z	*P*
ASPD patients	*n*=118								
Cluster A	7	(6%)	111	(94%)	3.66	0.74	17.99	1.50	0.11
Cluster B	29	(25%)	89	(75%)	18.80	4.40	81.22	3.95	0.00
Cluster C	2	(2%)	116	(98%)	1				
Forensic patients	*n*=298								
Cluster A	7	(2%)	291	(98%)	3.56	0.73	17.28	1.58	0.12
Cluster B	29	(10%)	269	(90%)	15.96	3.77	67.50	3.76	0.00
Cluster C	2	(1%)	296	(99%)	1				

The odds ratio of personality disorder clusters with/without comorbidities in ASPD patient (*n*=118) and forensic patients (*N*=289).

3.3.3 Previous convictions

A one-way between-groups analysis of variance was conducted to explore the impact of comorbidity groups on number of convictions, as measured by the total convictions on PNC. There was a statistically significant difference in number of convictions [$F(3, 114)=2.98$, $\boldsymbol{p=0.03}$). The effect size was calculated using eta squared, $\eta^2=.07$ (moderate size effect). Post hoc comparisons indicated that Group 1) ASPD + PD + SU (Median=10.50, interquartile range=11.25) had a significantly higher number of convictions

than Group 3) ASPD + PD - SU (Median=6.00, interquartile range=9.75), $p < 0.05$. Group 2) ASPD - PD + SU (Median=3.50, interquartile range =7.25) and Group 4) ASPD - PD - SU (Median=5.00, interquartile range=7.75) did not differ significantly from either Group 1 or 3.

Covariates

The regression slopes for the covariate did not differ between groups. The homogeneity of regression slopes assumption seemed to hold almost perfectly. No significant main effect for age and ethnicity was found respectively, and no significant interaction effect between age and group interaction was shown. After adjusting for age, there was a significant effect between the comorbidity groups on the number of convictions [$F(3, 113)=2.92$, ***p*= 0.04**], $\eta^2=.07$ (moderate size effect). After adjusting for ethnicity, there remained a significant effect between the comorbidity groups on the number of convictions [$F(3, 107)=3.10$, ***p*=0.03**], $\eta^2=.08$ (moderate size effect). After adjusting both for age and ethnicity, the effect remained significant [$F(3,106)=3.20$, ***p*=0.02**], $\eta^2 =.08$ (moderate effect size).

3.3.4 Physical and verbal violence

The results of the Fisher's exact test showed that there was no significant association between personality disorder and substance misuse comorbidities and history of violence, $p=0.65$, *n.s.*, suggesting that the four comorbidity groups and violent history were not related to one another.

Fisher's exact tests showed non-significant results in Group 1, p=.61, *n.s.*; Group 2, p=0.069, *n.s.;* Group 3, p=0.48, *n.s*.; Group 3, p=1.00, *n.s*.

3.3.5 Exploitation of others

A chi-square test of independence was performed to examine the association between personality disorder and substance misuse comorbidities and exploitation of others. The relation between these variables was non-significant, X^2(3, N=118) =0.96, p=0.81, *n.s,* suggesting that the four comorbidity groups and exploitation of others were not related to one another. Results showed a non-significant association between exploitation of others and four groups, Group 1, X^2(1, N=26) =0.35, p=.62, *n.s*.; Group 2 X^2(1, N=52) =0.08, p=0.84, *n.s*; Group 3 p=0.73, *n.s.* (Fisher's exact test); and Group 4, X^2(1, N=28) = 0.10, p=0.81.

3.3.6 Criminal justice/multi-agency public protection arrangements (MAPPA) involvement

The results of the Fisher-exact test showed that there was a significant association between personality disorder and substance misuse comorbidities and criminal justice/MAPPA, ***p*=0.01,** suggesting the four comorbid groups and previous criminal justice/MAPPA involvement were related to one another. The association was found significant in Group 1, ***p*=0.00**; however, it was non-significant in Group 2, X^2(1, N=52) =3.30, p=0.09, *n.s.;* Group 3*,* p=0.36, *n.s*.; and Group 4, p=1.00, *n.s.*

3.3.7 Fire-setting

A chi-square was performed to analyse the association between personality disorder and substance misuse comorbidities and fire-setting. The result was not significant, $X^2(3, N=118) = 3.65$, $p=0.30$, indicating that the four comorbid groups and fire-setting were not related to one another. The results were non-significant in all groups, Group 1, $X^2(1, N=26) = 3.46$, $p=0.07$, *n.s.;* Group 2 $X^2(1, N=52) = 1.43$, $p=0.28$, *n.s.;* Group 3, $p=1.00$ (Fisher's exact test); and Group 4, $X^2(1, N=28) = 0.20$, $p=.80$.

3.3.8 Sexual offending

A chi-square was used to analyse the association between personality disorder and substance misuse comorbidities and sexual offending. The results were non-significant, $X^2(3, N=118) = 2.01$, $p=0.57$, *n.s.,* suggesting that the comorbid groups and sexual offending were not related to one another. The association was found non-significant in Group 1, $X^2(1, N=26) = 0.34$, $p=0.65$, *n.s.;* Group 2, $X^2(1, N=52) = 1.83$, $p=0.25$, *n.s;* Group 3, $p=0.54$, *n.s.* (Fisher's exact test); and Group 4, $X^2(1, N=28) = 0.19$, $p=0.82$, *n.s.*

3.3.9 Hostage-taking

A Fisher's exact test was used to analyse the association between personality disorder and substance comorbidities and hostage-taking. The result was significant, $\mathbf{p=0.01}$, suggesting that comorbid groups and hostage-taking were related to one another. The association was found

significant in Group 1, ***p*=0.01** (Fisher's exact test). However, the results were non-significant in Group 2 X^2(1, *N*=52) =1.55, *p=0.26;* Group 3, *p*=1.00, *n.s*. (Fisher's exact test); and Group 4, *p*=.51*, n.s.* (Fisher's exact test).

3.3.10 Stalking harassment

A Fisher's exact test was used to analyse the association between personality disorder and substance comorbidities and stalking harassment. The result was non-significant, *p*=0.17, suggesting that comorbidity groups and stalking harassment were not related to one another. The association was found non-significant in Group 1, *p*=0.48, *n.s*. (Fisher's exact test); Group 2 X^2(1, *N*=52) =2.61, *p*=0.14, *n.s.*; Group 3, *p*=0.13, *n.s.* (Fisher's exact test); and Group 4, *p*=1.00*, n.s.* (Fisher's exact test).

3.3.11 Weapon offences

A chi-square test of independence was performed to examine the association between personality disorder and substance misuse comorbidities and weapon offences. The relation between these variables was significant, X^2(3, *N*=118) =9.38, ***p=0.02****.* The association was found significant in Group 1, X^2(1, *N*=26) =5.51, ***p*=0.03** and Group 3, X^2(1, *N*=12)=5.50, ***p*=0.03,** but non-significant in Group 2 X^2(1, *N*=52)=0.40, *p*=0.85, *n.s*.; and Group 4, X^2(1, *N*=28)=0.15, *p*=0.83, *n.s.*

3.3.12 Violence/aggression towards adults

A Fisher's exact test was used to analyse the association between personality disorder and substance misuse comorbidities and violence/aggression towards adults. The results were close to significant, p=0.06. The association was significant in Group 3, ***p*=.05**, but was non-significant in Group 1, $p=0.58$ (Fisher's exact test) *n.s.*; Group 2, p=1.00 (Fisher's exact test) *n. s.;* and Group 4, $p=0.57$, *n.s.* (Fisher's exact test) *n.s.*

3.3.13 Violence/aggression towards children

A Fisher's exact test was used to analyse the association between personality disorder and substance misuse comorbidities and violence/aggression towards children. The relation between these variables was non-significant, p=0.45. The association was non-significant for all groups, namely Group 1, p=0.77, *n.s.*; Group 2 $X^2(1, N=52) =1.17$, p=0.33, *n.s.;* Group 3, p=1.00 (Fisher's exact test), *n.s.*; and Group 4, p=0.15 (Fisher's exact test), *n.s.*

3.3.14 Homicide

A Fisher's exact test was used to analyse the association between personality disorders and substance misuse and homicide. The relation between these variables was non-significant, $p=0.32$. The association was non-significant in Group 1, p=0.65*, n.s.;* Group 2, $p=0.24$, *n.s;* Group 3,

p=1.00 (Fisher's exact test), *n.s.*; and Group 4, *p*=0.20 (Fisher's exact test), *n.s.*

3.3.15 Severity of violence

A Fisher's exact test was used to analyse the association between personality disorders and substance misuse comorbidity and severity of victim(s) injury. The results were non-significant *p* = -.07, *n.s*. Fisher's exact tested showed that association was found significant in Group 3 and minor injury, ***p = 0.05****,* but non-significant Group 1, *p = 0.52, n.s*.; Group 2, *p=0.79, n.s,; and Group 4 = 1.00, n.s.* The results were non-significant in significant injury, Group 1, *p* = 0.14, *n.s.*, Group 2, *p* = 0.69, *n.s*.; Group 3 = 0.51, *n.s.*; and Group 4 = 0.10., *n.s.* The association was non-significant between comorbidity groups and serious injury, Group 1, *p* = 0.49, *n.s*.; Group 2, *p = 0.*56, *n.s.;* Group 3, *p* = 1.00, *n.s*.; and Group 4, *p* = 1.00, *n.s.* However*,* the association was significant between Group 1 and grave injury, ***p* = 0.02**, but non-significant in Group 2, *p* = 0.40; Group 3, *p* = 0.73; and Group 4, p = 0.14. (Also See Table 3.3 for the Odds ratio of different types of violence/offences and severity of violence associated with personality disorders with/without substance misuse).

Table 3.3

Odds ratio of different types of violence/offences and severity of violence associated with personality disorders with/without substance misuse (*n*=118).

Clinical Characteristic	*Group comparison*												Statistic[a]	P value
	ASPD + Other PD + SU			ASPD - Other PD + SU			ASPD + Other PD - SU			ASPD – Other PD - SU				
	n	%	Odds ratio	n	%	Odds ratio	n	%	Odds ratio	n	%	Odds ratio		
Physical/verbal violence	24	20.30%	0.55	50	42.20%	1.61	11	9.30%	0.54	27	22.90%	1.59	0.89	*p*=0.65^
Exploitation of others	8	6.80%	1.33	13	11%%	0.89	2	1.70%	0.55	8	6.80%	1.17	0.05	*p*=0.81
Criminal justice/ multi-agency public protection arrangements	8	6.80%	6.37	3	2.50%	0.31	0	0.00%		3	2.50%	0.86	0.32	***P*=0.01^****
Fire-setting	10	8.50%	2.40	10	8.50%	0.59	3	2.50%	1.03	6	5.10%	0.79	0.17	*p*=0.30
Sexual offending	8	6.80%	0.76	22	18.60%	1.69	3	2.50%	0.57	9	7.60%	0.82	0.13	*p*=0.57^
Hostage-taking	7	5.90%	4.47	4	3.40%	0.47	1	0.80%	0.65	2	1.70%	0.50	0.25	***p*=0.01^****
Stalking/harassment	4	3.40%	1.68	3	2.50%	0.34	3	2.50%	3.20	3	2.50%	0.96	0.19	*p*=0.17^
Carrying of Weapon	20	16.90%	3.19	29	24.60%	0.93	3	2.50%	0.22	15	12.70%	0.84	0.28	***p*=0.02***
Violence/ aggression towards adults	26	22.00%	-	50	42.40%	0.78	2	1.70%	0.10	28	23.70%	-	0.27	*p*=0.06^
Violence and aggression toward children	5	4.20%	1.22	11	9.30%	1.70	2	1.70%	0.98	2	1.70%	0.31	0.15	*p*=0.45^
Homicide	2	1.70%	1.45	5	4.20%	3.40	0	0.00%	-	0	0.00%	-	0.18	*p*=0.32^
Severity of injuries														
Minor, e.g., altercation; non-contact sex offence; damage to property; waste-bin fire	2	1.70%	0.62	6	5.10%	2.67	4	3.40%	1.45	3	2.50%	1[R]	0.22	p=.07^
Significant, e.g., significant injury; major fire; sex assault	4	3.40%	0.24	16	13.60%	1.63	2	1.70%	0.11	12	10.20%	1[R]		
Serious, e.g., wounding, arson endangering life, rape	7	5.90%	0.73	19	16.10%	3.17	4	3.40%	0.38	9	7.60%	1[R]		
Grave, e.g., including homicide, near-fatal injury, profound trauma	13	11.00%	4.97	11	9.30%	3.76	2	1.70%	0.46	4	3.40%	1[R]		

Values displayed in bold are significant at the level alpha, $p \leq 0.05$<, $p \leq 0.01 \leq$**

^p-values (Fisher's exact test)

1[R] Reference group

3.3.16 Predictors for types of violence

Group 1) ASPD + PD + SU

A logistic regression analysis was performed with Group 1 as the dependent variable and physical/verbal violence, exploitation of others; criminal justice/MAPPA involvement, fire-setting, sexual offending, hostage-taking, stalking harassment, weapon offences, violence/aggression towards adults, violence and aggression toward children, and homicide as predictor variables. A total of 118 cases were analysed, and the full model significantly predicted violence (omnibus chi-square = 25.28, df = 11, ***p*= 0.008**). The model accounted for between 19.3% and 29.6% of the variance in violent outcomes, with 97.8% of the non-(ASPD + PD + SU) successfully predicted. However, only 46.2% of predictors for the + ASPD + PD + SU group were accurate. Overall, 86.4% of predictors were accurate. Table 3.4 gives coefficient and the Wald statistic and associated degrees of freedom and probability values for each of the predictor variables. This showed that only hostage-taking and criminal justice and MAPPA involvement reliably predicted ASPD + PD + SU. The values of the coefficients reveal that the presence of hostage-taking offences is associated with an increase in the odds of ASPD + PD + SU by a factor of 0.14 (95% CI 0.03-0.61), and that the presence of criminal justice/MAPPA involvement is associated with an increase in the odds of ASPD + PD + SU by a factor of 0.13 (95% CI 0.03-0.62).

Group 2) ASPD-PD+SU

A total of 118 cases were analysed, and the full model significantly predicted violence (omnibus chi-square= 22.72, df=11, ***p*=0.02**). The model accounted for between 17.5% and 23.5% of the variance in violent outcomes, with 72.7% of the non-(ASPD - PD + SU) successfully predicted. However only 57.7% of predictions for the ASPD - PD + SU group were accurate. Overall, 66.1% of predictors were accurate. Table 3.4 gives the co-efficient and the Wald statistic and associated degree of freedom and probability for each of the predictor variables. The results showed that only sexual offending, hostage-taking, homicide and criminal justice and MAPPA involvement reliability predicted ASPD - PD + SU. The values of the coefficients reveal that the presence of sexual offending is associated, with an increase in the odds of ASPD - PD +SU by a factor of 0.49 (95% CI 0.17-1.00); that the presence of hostage-taking is associated, with an increase in the odds of ASPD – PD + SU by a factor of 5.06 (95% CI 1.07-23.91); that the presence of homicide is associated, with an increase in the odds of ASPD – PD + SU by a factor of 0.07 (95% CI 0.01-0.63); that the presence of criminal justice and MAPPA involvement is associated, with an increase in the odds of ASPD – PD + SU by a factor of 8.19 (95% CI 1.31-51.33).

Group 3) ASPD + PD - SU and Group 4 + ASPD – PD - SU

The full model did not significantly predict violence (omnibus chi-square = 14.81, df=11, *p*=0.19) in Group 3. The full model did not significantly predict violence (omnibus chi-square= 9.82, df=11, *p*=0.66) in Group 4.

3.3.17 Predictors for severity of violence

Group 1) ASPD + PD + SU

A logistic regression analysis was performed with Group 1 as the DV and severity of violence. A total of 118 cases were analysed, and the full model significantly predicted violence (omnibus chi-square= 8.45, df=1, ***p*=0.004**). The model accounted for between 6.9% and 10.6% of the variance in violent outcomes, with 100% of the non ASPD + PD + SU successfully predicted. Overall, 78.0% of predictors were accurate. Table 3.4 gives coefficient and the Wald statistic and associated degrees of freedom and probability values for each of the predictor variables. This showed that severity of violence reliably predicted ASPD + PD + SU. The values of the coefficients reveal that an increase in severity of violence scores is associated with an increase in the odds of ASPD + PD + SU by a factor of 0.49 (95% CI 0.29-0.82).

Group 2) ASPD – PD + SU, Group 3) ASPD + PD - SU, Group 4) ASPD – PD - SU

The full model did not significantly predict violence (omnibus chi-square= 0.14, df=1, *p=0.*70) in Group 2. The full model did not significantly predict violence (omnibus chi-square= 0.197, df=1*, p=0.*16) in Group 3. The full model did not significantly predict violence (omnibus chi-square= 1.70, df=1, *p*=0.19) in Group 4.

Table 3.4
Logistic regression showing the predictors for different types and severity of violence in personality disorders with/without substance misuse (n=118)

	Group comparison											
Clinical Characteristic	**ASPD + Other PD + SU**			**ASPD - Other PD + SU**			**ASPD + Other PD – SU**			**ASPD – Other PD - SU**		
	Wald's X2	**p**	**Exp(B) Odds ratio**	Wald's X2	**p**	**Exp(B) Odds ratio**	Wald's X2	**p**	**Exp(B) Odds ratio**	Wald's X2	**p**	**Exp(B) Odds ratio**
Types of violence/ offences												
Physical/verbal violence	2.59	0.11	5.60	1.42	0.23	0.27	0.05	0.82	0.65	0.00	0.95	0.92
Exploitation of others	0.04	0.84	0.89	0.44	0.51	1.38	0.009	0.92	1.09	0.13	0.72	0.83
Criminal justice/ multi-agency public protection arrangements	6.65	**0.01****	0.13	5.04	**0.03***	8.19	0	0.10	55.37	0.18	0.67	0.71
Fire-setting	2.64	0.10	0.40	2.20	0.14	2.09	0.173	0.677	0.72	0.11	0.74	1.20
Sexual offending	1.16	0.28	1.83	3.86	**0.05***	0.41	0.572	0.45	1.77	0.16	0.69	1.22
Hostage-taking	6.89	**0.01****	0.14	4.18	**0.04***	5.06	0.001	0.98	0.97	0.47	0.49	1.77
Stalking harassment	0.22	0.64	0.68	2.43	0.12	3.40	2.616	0.11	0.23	0.13	0.72	0.77
Weapon	0.65	0.42	0.61	0.60	0.44	0.71	2.974	0.08	3.75	0.08	0.78	1.14
Violence/ aggression towards adults	0.00	1.00	0.00	0.00	0.98	1.04	2.362	0.12	8.77	0.00	1.00	0.00
Violence and aggression toward children	0.25	0.62	1.45	2.62	0.11	0.35	0	0.99	1.00	1.62	0.20	2.87
Homicide	0.89	0.35	2.71	5.59	**0.02***	0.07	0	0.9	7.01	0.00	1.00	5.03
Severity of injuries	7.40	**0.01****	0.49	0.14	0.70	1.07	1.92	0.166	1.54	1.68	0.20	1.33

Values displayed in bold are significant at the level alpha, $p \leq 0.05 <$, $p \leq 0.01 \leq$**

3.3.18 Agitated behaviour expansive mood

To examine mental health outcomes, a Fisher's exact test was used to analyse the association between personality disorders and substance misuse and agitated behaviour expansive mood. The relation between these variables was non-significant, *p*=0.56, *n.s.* The association was non-significant in all groups; Group 1, *p*=0.81, *n.s*., Group 2, *p*=0.54*, n.s.*; Group 3, *p*=0.32, *n.s*.; and Group 4, *p*=1.00., *n.s.* The association was non-significant between groups and minor problems in agitated behaviour expansive mood, Group 1, *p*=0.31, *n.s*.; Group 2, *p*=0.83, *n.s*.; Group 3, *p*=0.29, *n.s*.; and Group 4, *p*=0.13, *n.s.* The association was non-significant between groups and mild problems in agitated behaviour expansive mood, Group 1, *p*=1.00, *n.s*.; Group 2, *p*=1.00, *n.s*.; Group 3=0.73, *n.s*.; and Group 4, p=1.00, *n.s.* The association was non-significant between groups and moderately severe problems in agitated behaviour expansive mood, Group 1, *p*=1.00, *n.s*. Group 2, *p*=1.00, *n.s*.; Group 3, p=0.43, *n.s*.; and Group 4=0.78, *n.s.* The association was non-significant between groups and severe to very severe problems in agitated behaviour expansive mood, Group 1, *p*=0.22, *n.s*. Group 2, *p*=0.33, *n.s*; *G*roup 3 *p*=0.60, *n.s*; and Group 4, *p*=0.11, *n.s.*

3.3.19 Cognitive problems

A Fisher-exact test was used to analyse the association between personality disorders and cognitive problems. The relation between these variables was non-significant, *p*=0.94*, n.s.*

The association was non-significant between groups and no cognitive problems, Group 1, *p*=1.00, *n.s.*; Group 2, *p*=0.84, *n.s.*; Group 3, *p*=0.51, *n.s.*; and Group 4, *p*=0.81, *n.s.* The association was non-significant between groups and minor cognitive problems, Group 1, *p*=0.56 *n.s.* Group 2, *p*=0.46, *n.s.*; Group 3, *p*=1.00, *n.s.*; and Group 4, *p*=1.00, *n.s.*

The association was non-significant between groups and mild cognitive problems, Group 1, *p*=0.71, *n.s.*, Group 2, *p*=0.75, *n.s.*; Group 3, *p*=0.06, *n.s.*; and Group 4,*p*=0.29, *n.s*. The association was non-significant between groups and marked/moderately severe cognitive problems, Group 1, *p*=0.30, *n.s.,* Group 2, *p*=1.00, *n.s.;* Group 3, *p*=1.00, *n.s.*; and Group 4, *p*=1.00, *n.s.*

3.3.20 Hallucinations and delusions

A Fisher-exact test was used to analyse the association between personality disorders and substance misuse disorders and problems associated with hallucinations and delusions. The relation between these variables was non-significant, *p*=0.27, *n.s.* The association was non-significant in Group 1, *p*=0.51, *n.s*; Group 2, *p*=0.14, *n.s.*; Group *p*=0.37, *n.s.*; and Group 4, *p*=0.10, *n.s.* The association was non-significant between groups and mild odd or eccentric beliefs, Group 1, *p*=0.10, *n.s.*, Group 2, *p*=0.66, *n.s*. Group 3, *p*=0.46, *n.s.;* and Group 4, *p*=0.19., *n.s*. The association was non-significant between groups and delusions and hallucinations, Group 1, *p*=0.30, *n.s.* Group 2, *p*=0.28, *n.s.*; Group 3, p =0.07, *n.s.*; and Group

4=0.32, *n.s.* The association was non-significant between groups and marked preoccupation with delusions or hallucinations Group 1, *p*=0.61 *n.s.,* Group 2, *p*=0.69, *n.s.;* Group 3 *p*=0.48, *n.s*.; and Group 4, *p*=1.00, *n.s.* The association was non-significant between groups and severe delusions or hallucinations, Group 1, *p*=1.00, *n.s*. Group 2, *p*=0.44, *n.s*.; Group 3, *p*=1.00, *n.s*.; and Group 4, p=1.00, *n.s.*

3.3.21 Depression

A Fisher's exact test was used to analyse the association between personality disorders comorbid with substance misuse and problems associated with depressed mood. The relation between these variables was non-significant, *p*=0.20, *n.s.* The association was non-significant between groups and no evidence/minor problems associated with depression, Group 1, *p*=0.25*, n.s*., Group 2, *p*=0.44, *n.s*.; Group 3, *n.s*., *p*=0.21, *n.s*.; and Group 4, *p*=0.27, *n.s.* The association was non-significant in groups and mild depression, Group 1, *p*=0.81, *n.s.,* Group 2, *p*=0.84, *n.s*.; Group 3, *p*=0.32, *n.s*.; and Group 4, *p*=0.81, *n.s.* The association was significant between Group 1 and depression, ***p*=0.04**, but non-significant in Group 2, *p*=0.18, *n.s.;* Group 3, *p*=0.27, *n.s*; and Group 4, *p*=0.45, *n.s.* The association was non-significant between groups and severe or very severe depression, Group 1, *p*=1.00, *n.s*.; Group 2, *p*=0.20, *n.s*.; Group 3, *p*=1.00, *n.s*.; and Group 4, *p*=1.00, *n.s.*

3.3.22 Unreasonable beliefs occurring in nonpsychotic disorder

A Fisher's exact test was used to analyse the association between personality disorders comorbid with substance misuse and strong unreasonable beliefs (nonpsychotic). The result was significant, ***p*=.02**. The association between groups and no problem associated with strong unreasonable beliefs occurring in nonpsychotic disorder was non-significant, *p*=0.49, Group 2, *n.s*., *p=0.*84, *n.s*.; Group 3, *n.s*., *p*=0.21 *n.s.;* and Group 4, *p*=0.65, *n.s*.

The association was non-significant between groups and minor problems with unreasonable beliefs occurring in nonpsychotic disorder, Group 1, *p*=0.10, *n.s*., Group 2, *p*=42, *n.s*.; Group 3, *p*=0.06, *n.s*.; and Group 4, **p=.0.01.** The association was non-significant between groups and mild problem with unreasonable beliefs occurring in nonpsychotic disorder, Group 1, *p*=0.75, *n.s*.; Group 2, *p*=0.79, *n.s*.; Group 3, *p*=0.37, *n.s*; and Group 4, *p*=1.0, *n.s.* The association was non-significant in groups and moderately severe problems with unreasonable beliefs occurring in nonpsychotic disorder, Group 1, *p*=0.59, *n.s;* Group 2, *p*=0.38, *n.s*.; Group 3, *p*=0.42, *n.s.;* and Group 4, *p*=.0, *n.s*. The association was non-significant between groups and severe problems with unreasonable beliefs occurring in nonpsychotic disorder, Group 1, *p*=1.0, *n.s*., Group 2, *p*=0.50, *n.s.;* Group 3 *p*=0.19, *n.s*.; and Group 4, *p*=0.42, *n.s*. (See Figure 3.5 for the odds ratio of mental health problems associated with personality disorders with/without substance misuse).

Table 3.5.

Odds ratio of mental health problems associated with personality disorders with/without substance misuse (*n*=118)

	Group comparison													
Clinical Characteristic	**ASPD + Other PD + SU**			**ASPD - Other PD + SU**			**ASPD + Other PD – SU**			**ASPD - Other PD - SU**			**Statistic[a]**	**P value**
	n	**%**	**Odds ratio**	**N**	**%**	**Odds ratio**	**N**	**%**	**Odds ratio**	**n**	**%**	**Odds ratio**		
Agitated behaviour expansive mood													0.18	*p=0.*56^
No problem	8	6.80%	1.00	13	11.00%	1.86	5	4.20%	0.56	8	6.80%	1[R]		
Minor problem requiring no action	4	3.40%	0.30	13	11.00%	1.56	1	0.80%	0.07	10	8.50%	1[R]		
Mild problem but definitely present	6	5.10%	1.00	11	9.30%	2.44	3	2.50%	0.43	6	5.10%	1[R]		
Moderately severe problem	4	3.40%	1.00	9	7.60%	3.27	3	2.50%	0.71	4	3.40%	1[R]		
Severe to very severe problem	4	3.40%	-	6	5.10%	-	0	0.00%	-	0	0.00%	1[R]		
Cognitive problems													0.11	*p=0.*94
No problem of this kind during the period rated	18	15.30%	0.93	36	30.50%	2.58	10	8.50%	0.18	19	16.10%	1[R]		
Minor problems with memory and understanding (e.g., forgets names occasionally	3	2.50%	0.70	10	8.50%	4.17	2	1.70%	0.44	4	3.40%	1[R]		
Mild but definite problems	3	2.50%	0.66	4	3.40%	1.00	0	0.00%	-	4	3.40%	1[R]		
Marked disorientation in time, place or person; bewildered by everyday events	2	1.70%	2.67	2	1.70%	2.67	0	0.00%	-	1	0.80%	1[R]		

Values displayed in bold are significant at the level alpha, $p \leq 0.05$<, $p \leq 0.01$≤**

^p-values (Fisher's exact test)

1[R] Reference group

	Group comparison													
Clinical Characteristic	**ASPD + Other PD + SU**			**ASPD - Other PD + SU**			**ASPD + Other PD - SU**			**ASPD – Other PD - SU**			**Statistic[a]**	**P value**
	n	**%**	**Odds ratio**	**n**	**%**	**Odds ratio**	**n**	**%**	**Odds ratio**	**n**	**%**	**Odds ratio**		
Problems associated with hallucinations and delusions													0.19	*p=0.27*^
No evidence	14	11.90%	1.74	29	24.60%	5.61	4	3.40%	0.45	9.00	7.60%	1[R]		
Somewhat odd or eccentric beliefs	6	5.10%	0.57	10	8.50%	1.18	1	0.80%	0.08	9.00	7.60%	1[R]		
Somewhat odd or eccentric beliefs	4	3.40%	0.36	10	8.50%	1.17	6	5.10%	0.58	9.00	7.60%	1[R]		
Marked preoccupation with delusions or hallucinations	2	1.70%	2.50	2	1.70%	2.50	1	0.80%	1.00	1.00	0.80%	1[R]		
Severe to very severe problem	0	0.00%	-	1	0.80%	-	0	0.00%	-	0.00	0.00%	1[R]		
Problems with depressed mood													0.18	*p=0.20*^
Gloomy or minor changes in mood (not regarded as "depression")	13	11.00%	0.57	34	28.80%	2.33	5	4.20%	0.19	20	16.90%	1[R]		
Mild but definite depression and distress	8	6.80%	1.19	14	11.90%	2.70	5	4.20%	1.50	7.00	5.90%	1[R]		
Depression with inappropriate self-blame, preoccupied with feelings of guilt, at a level likely to attract diagnosis	5	4.20%	9.00	2	1.70%	2.25	2	1.70%	2.25	1.00	0.80%	1[R]		
Severe or very severe depression, with guilt or self-accusation	0	0.00%	-	2	1.70%	-	0	0.00%	-	0.00	0.00%	1[R]		

Values displayed in bold are significant at the level alpha, $p \leq 0.05$<, $p \leq 0.01$≤**

^p-values (Fisher's exact test)

1[R] Reference group

	Group comparison													
Clinical Characteristic	**ASPD + Other PD + SU**			**ASPD - Other PD + SU**			**ASPD + Other PD - SU**			**ASPD – Other PD - SU**			**Statistic[a]**	**P value**
	n	**%**	**Odds ratio**	**n**	**%**	**Odds ratio**	**n**	**%**	**Odds ratio**	**n**	**%**	**Odds ratio**		
													0.24	***p=0.02^****
Strong unreasonable beliefs occurring in nonpsychotic disorder														
No problem	19	16.10%	0.93	34	28.80%	2.18	6	5.10%	0.24	20	16.90%	1[R]		
Minor problem requiring no action	3	2.50%	-	9	7.60%	-	4	3.40%	-	0	0.00%	1[R]		
Mild problem but definitely present	4	3.40%	1	8	6.80%	0.03	0	0.00%	-	4	3.40%	1[R]		
Moderately severe problem	0	0.00%	-	1	0.80%	0.17	1	0.80%	0.17	3	2.50%	1[R]		
Severe to very severe problem	0	0.00%	-	0	0.00%	-	1	0.80%	-	1	0.80%	1[R]		

Values displayed in bold are significant at the level alpha, $p \leq 0.05 <$, $p \leq 0.01 \leq$**

^p-values (Fisher's exact test)

1[R] Reference group

3.3.23 Predictors of mental health outcomes

Group 1 ASPD + PD + SU

A logistic regression analysis was performed with Group 1 as the DV and agitated behaviour expansive mood, cognitive problem, problems associated with hallucinations and delusions, problems with depressed mood, and strong unreasonable beliefs occurring in nonpsychotic disorder. A total of 118 cases were analysed, and the full model did not significantly predict mental health outcomes (omnibus chi-square= 16.06, df=18, p=0.59).

Group 2 ASPD – PD + SU, Group 3 ASPD + PD - SU, Group 4 ASPD – PD - SU

The full model did not significantly predict mental health outcomes (omnibus chi-square= 17.59, df=18, p=0.48) in Group 2. The full model did not significantly predict mental health outcomes (omnibus chi-square= 26.69, df=18, p=0.09) in Group 3. The full model did significantly predict mental health outcomes (omnibus chi-square= 33.36, df=18, ***p*=0.02**) in Group 4. The model accounted for between 24.6% and 37.0% of the variance in violent outcomes, with 95.1% of the non ASPD – PD - SU successfully predicted. However, only 39.3% of predictions for the ASPD – PD - SU group were accurate. Overall, 82.2% of predictors were accurate. Table 3.4 gives the co-efficient and the Wald statistic and associated degree of freedom and probability for each of the predictor variables. The result

showed that the presence of mental health problems is not associated with ASPD – PD - SU.

3.3.24 Summary of key findings

The key findings of this study are summarised below:

The prevalence ASPD ± Other PD ± SU

- ASPD – Other PD + SU (44%) was the most prevalent in forensic samples.
- ASPD + Cluster B personality disorder (25%) was the most prevalent in forensic patients, compared to ASPD + Cluster A personality disorders (2%) and ASPD + Cluster C personality disorders (2%).
- The odds of ASPD + Cluster B personality disorders were 15.95 times higher than ASPD + Cluster A personality disorders in forensic patients.

The association between the comorbidity of ASPD ± Other PD ± SU and violence

- ASPD + Other PD + SU was associated with severe violence.
- ASPD + Other PD + SU was associated with convictions, criminal justice, MAPPA involvement, hostage-taking, weapon offences and grave injury.
- Patients with ASPD + Other PD + SU showed a significantly higher number of convictions and weapon offences than ASPD + Other PD – SU.

- ASPD + Other PD – SU was associated with less serious, but high incidences of violence.

- ASPD+ Other PD - SU was found to be associated with weapon offences, and higher incidents of violence/aggression towards adults. The comparing groups for violence are illustrated in Table 3.6.

- Several types of offences/violence were not associated with ASPD ± Other PD ± SU comorbidities. These included both physical and verbal violence, exploitation of others, fire-setting, sexual offending, stalking harassment and violence towards children.

Table 3.6

Comparing groups for violence

	Group 1	Group 2	Group 3	Group 4
	ASPD + Other PD + SU	ASPD – Other PD + SU	ASPD + Other PD - SU	ASPD – Other PD – SU
Number of convictions	X ^Higher		X^	
Physical and verbal violence				
Exploitation of others				
Criminal justice/MAPPA involvement	X			
Fire-setting				
Sexual offending				
Hostage-taking	X			
Stalking harassment				
Weapon offences	X^ Higher		X^	
Violence/ aggression towards adult			X	
Violence/aggression toward children				
Homicide				
Grave injury	X			

X significant associations

^ significant difference between groups

Significantly higher

The association between the comorbidity of ASPD ± Other PD ± SU and mental health outcomes

- Depression and strong unreasonable beliefs occurring in a nonpsychotic context were significantly associated with ASPD + Other PD + SU.
- Mild problems with unreasonable beliefs were associated with ASPD – Other PD – SU. The comparing groups for mental health outcomes are illustrated in Table 3.7.
- Other mental health outcomes, including agitation behaviour expansive mood, cognitive problems, hallucinations and delusions, were not associated with the comorbidity of ASPD ± Other PD ± SU

Table 3.7

Comparing groups for mental health outcomes

	Group 1	Group 2	Group 3	Group 4
	ASPD + Other PD + SU	ASPD- Other PD + SU	ASPD + Other PD -SU	ASPD- Other PD- SU
Agitation behaviour expansive mood				
Cognitive problems				
Hallucinations and delusions				
Depression	X			
Unreasonable beliefs occurring in nonpsychotic disorder	X^ Higher			X^

X significant associations

^ significant difference between groups

Significantly higher

3.4 Discussion

Chapter 3 provided primary research which aimed to investigate the impact of comorbid PDs with ASPD and SU on violence and mental health outcomes in male forensic patients aged 18-65 years and who were in receipt of psychiatric care in a secure hospital. The investigator examined three main questions: 1) the prevalence of ASPD ± Other PD ± SU; 2) the association between the comorbidity of ASPD ± Other PD ± SU and violence; and 3) the association between the comorbidity of ASPD ± Other PD ± SU and mental health outcomes. The study tested the hypothesis that forensic patients who demonstrated personality comorbidities and substance misuse would show a high level of violence and more negative mental health outcomes than patients without comorbidities.

Consistent with the findings in the systematic review in Chapter 2, most research studies focus on examining the comorbidity of ASPD + BPD + SU however other PDs have been overlooked by existing empirical studies. The present study attempted to overcome the methodological challenges by defining the comparison groups and outcome variables. The comparison groups were categorised based on the DSM-IV personality disorders clusters, so that all possible combination of comorbidity patterns were being examined.

Regarding the findings, the prevalence of ASPD ± Other PD ± SU is considered as high in forensic patients. The prevalence rates are largely

consistent with prevalence rates in the forensic samples, although it was not possible to make a direct comparison as previous studies focused on studying a specific group of clinical samples with ASPD. Namely, patients diagnosed with ASPD + BPD + SU (Black et al., 2016; Howard et al., 2021; Howard et al., 2009). One study found that 33% of patients diagnosed with BPD had a comorbidity of ASPD + SU (Newhill, 2009). Although the prevalence of ASPD and BPD comorbidity was not specifically investigated, the prevalence of Cluster B personality disorders comorbidity was significantly higher than Other PD clusters, indicating a consistent finding compared to the previous studies (Blackburn & Coid, 1999; Coid & Ullrich, 2010; Howard et al., 2014; Semiz et al., 2008; Warren et al., 2002).

In terms of violence outcomes, individuals with ASPD + Other PD + SU presented with a significantly higher number of convictions and severe violent outcomes, which showed that the comorbidities of personality disorders and substance misuse comorbidities may have a cumulative impact on the severity and levels of violence. Based on the findings, it is probable that ASPD + Other PD - SU is associated with less serious, but higher incidences of antisocial outcomes (e.g., using weapons, making aggressive threats) rather than violent outcomes. Additionally, SU may play a role in moderating the severity and frequency of violence. In other words, in the absence of SU, the severity and frequency of violence may be reduced. Additionally, in the absence of SU, the frequency of antisocial

incidences would be higher. However, further exploration would be required in order to confirm this hypothesis.

The findings seem to lend some support to the hypothesis regarding the severity of violence. This may further confirm that the cumulative effect of Other PD played a role in violence. For instance, the absence of SU may potentially serve a moderating role in reinforcing self-control, thus minimising incidents of disinhibition. This was consistent with Howard and McMurran (2013) who highlighted that personality pathology is moderated by the effects of substance misuse during adolescence, which also accounts for impairments in brain development. It is possible to conclude that, in absence of PD and SU comorbidity, the incidences of violent outcomes may be reduced substantially among the individuals.

The findings also suggested the types of violence offence may not be associated with the cumulative effect of personality disorder and substance misuse comorbidities. One possible explanation is that the offending trajectory of offences such as fire-setting, sexual offending, stalking and child abuse is entirely different from violence. For instance, the Multi-Trajectory Theory of Adult Firesetting (M-TTAF) is based on the hypothesised trajectories, namely, antisocial cognition, grievance, fire interest, emotionally expressive/need for recognition and multifaceted trajectories. (Gannon et al. 2012). Future study may improve the efficacy of research by narrowing it to a specific type of violence such as actual

bodily harm (ABH) and grievous bodily harm (GBH) in order to identify the patterns of violent assaults. However, another alternative explanation may suggest that violence may be better measured by the severity and frequency, rather than the versatility, of offences, although it may be hard to accurately define the degree of harm towards others without considering types of violent offences alone.

In terms of mental health outcomes, the results showed that personality disorder with/without substance misuse comorbidities was not associated with the majority of the mental health outcomes. It appears that the cumulative effect of personality disorder and SU co-morbidities has not inferred any effect on mental health outcomes. However, this study found an exception in depression. ASPD + Other PD + SU was significantly associated with depression other than comorbidity groups. However, research suggested that co-morbid personality disorders (mostly Cluster B and C) was found in 50% of patients with depression, as personality comorbidity is associated with unfavourable clinical indicators such as severity and recurrence of depression. (Van & Kool, 2018). In absence of Other PD and SU, ASPD was associated with mild problems with unreasonable beliefs occurring in a nonpsychotic context (Van & Kool, 2018).

The findings appear to support the cognitive theories (Beck et al., 2015), as ASPD is based upon a set of cognitive-behavioural representations.

However, such effect was not noted in ASPD ± Other PD ± SU. Ozdel et al. (2015) indicated that antisocial individuals' behavioural strategies of combativeness, exploitation, and predation were over-developed; whilst their strategies for empathy, reciprocity, and social sensitivity became under-developed. The authors highlighted that the usefulness of identifying core beliefs and early maladaptive schemas that characterise ASPD, as distinct from Other PDs.

Furthermore, the presence of personality disorder with/without substance misuse comorbidities appears to have less impact on patients' mental health outcomes. However, Dellazizzo et al. (2018) found that early delinquent offenders have the most severe psychopathological and suicide attempts characteristics and anxiety characteristics. Unfortunately, incidents of self-harm and suicides were not explored in the current study due to the limited availability of reliable data. Research also suggested that comorbid personality disorders are associated with adverse long-term mental health outcomes in psychiatric samples, whilst short-term mental health outcomes were less evident (Black et al., 2016). Mental health outcome is still an area that is under-researched, therefore more evidence would be required to further establish the link between ASPD ± Other PD ± SU.

One of the limitations of the present study is the small sample size, which has been consistently proven to be the most challenging aspect in forensic

mental health research despite attempts to overcome this barrier (i.e., using database study, accessing multiple secure wards). The current study attempted to resolve this challenge by categorising personality disorders into personality disorder clusters to reduce levels of heterogeneity. However, methodological challenges such as heterogeneous samples, paucity of clearly defined variables such as violence and mental health outcomes remain a substantial challenge in generalising the research findings. Due to the small sample size in female patients, only male samples were included in the analysis. Therefore, the findings of this study cannot be generalised in all genders within forensic populations. It may be worth replicating the study using multi-site and consortium partnership research in the future. The current study also has important implications as it considers the cumulative effect of ASPD and co-morbid personality disorders, as well as the moderating effect of substance misuse, when investigating the risk factors which predict violence. This could add considerable value in informing risk assessment, formulation, and treatment.

Chapter 4

A methodological critique of structured personality disorder assessment instruments and classification systems in relation to personality disorder comorbidities

Abstract

This critique chapter explored the most widely established diagnostic systems of classification, namely the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Diseases (ICD). It reviewed the reliability, validity and clinical utility of current and forthcoming versions of DSM and ICD, in relation to how these account for personality disorder comorbidities. Both categorial and dimensional assessment methods of personality disorders were evaluated. It was proposed that current classification systems and assessment methods could be enhanced by including: i) the ten specific personality disorder and emotionally unstable personality disorder-borderline type specifiers; ii) explicit diagnostic criteria as part of the diagnostic threshold; iii) dimensional-trait assessment; iv) psychopathy assessment; and v) the levels of severity in personality functioning. The proposed classification systems may allow clinicians to employ multiple-dimensional assessment measures which are not too over-simplified or complicated, portraying a distinctive diagnostic profile of personality disorder. It is also clear that the combinations of trait qualifiers or the categorical-dimensional assessment model, either together or alone, fail to account for the personality disorder

comorbidities. However, the discrepancies between classification systems are likely to be complicated when assessing severely complex and comorbid personality disorders. A collaborative development that aligns the two classification systems more closely may be what the future holds.

4.1 Introduction

Personality disorders are chronic patterns of perceptual and behavioural abnormalities that are characterised by impairment in self and interpersonal function. The presence of pathological personality traits is relatively inflexible, with stability over time. The onset of symptoms is usually manifested in adolescence or early adulthood. Despite an emerging pattern of current personality disorder classification systems generally moving away from discrete and categorical entities, the concept of personality disorders remains broadly similar, i.e. disorders characterised by a pervasive and enduring pattern of thought, emotions, behaviour, and interpersonal functioning which deviates markedly from the expectations of others (American Psychiatric Association [APA], 2013a; Ekselius, 2018; World Health Organisation [WHO], 1993; 2019).

The most widely established diagnostic systems of classification are the Diagnostic and Statistical Manual of Mental Disorders (DSM) published by the American Psychiatric Association and the International Classification of Diseases (ICD) published by the World Health Organisation. The classification systems have required amendments in each successive edition; however, concerns in regard to the reliability and validity of personality disorders remain, with some clinicians and researchers expressing particular concerns about moves towards the dimensional trait system (e.g., Rottman et al., 2009; Shedler & Westen, 2004). Additionally, clinical utility highlights the practical aspects of the diagnostic systems, in

terms of accessibility, frequency of use, importance in facilitating communication and improving treatment (e.g., Mullins-Sweat, Lengel, & DeShong, 2016; Widiger & Mullins-Sweatt &, 2010). This chapter will review the reliability, validity and clinical utility of DSM and ICD, particularly how the assessment instruments and classification systems account for personality disorder comorbidities.

4.2 DSM Personality Disorders Classification

The DSM is the professional handbook used by healthcare clinicians in many countries as to the diagnosis of mental disorders. It provides a manual for assessment of mental disorders, entailing the descriptions, symptoms and criteria for the diagnosis. The diagnostic system tends to depend on operational criteria using a polythetic system for most clinical conditions. The most recent iteration is DSM-5 (APA, 2013), which has made some important changes in respect to personality disorders compared to DSM-IV. For this reason, both versions will be considered below.

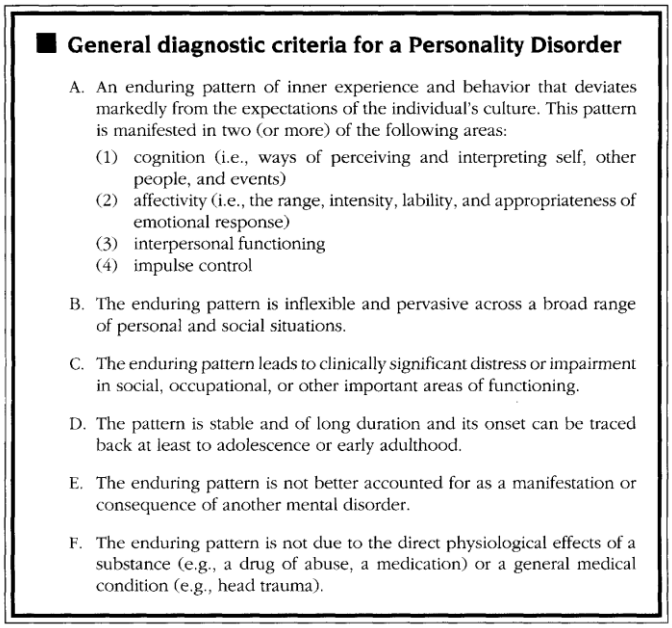
4.2.1 DSM-IV

Personality disorders are defined as *"an enduring pattern of inner experience and behaviour that deviates markedly from the expectations of the individual's culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time, and leads to distress and impairment"* (APA, 1994, p. 629). A set of criteria outlined in Figure 4.1 illustrates general personality disorder diagnostic criteria from the

DSM-IV (APA, 1994, p. 633). Ten specific personality disorders are coded on Axis II in the DSM-IV and are categorised into three clusters based on some overall common features. To illustrate, Table 4.1 outlines DSM-IV personality disorder, by cluster.

Figure 4.1

General diagnostic criteria of a personality disorder in DSM-IV



General diagnostic criteria for a Personality Disorder

A. An enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual's culture. This pattern is manifested in two (or more) of the following areas:
   (1) cognition (i.e., ways of perceiving and interpreting self, other people, and events)
   (2) affectivity (i.e., the range, intensity, lability, and appropriateness of emotional response)
   (3) interpersonal functioning
   (4) impulse control

B. The enduring pattern is inflexible and pervasive across a broad range of personal and social situations.

C. The enduring pattern leads to clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The pattern is stable and of long duration and its onset can be traced back at least to adolescence or early adulthood.

E. The enduring pattern is not better accounted for as a manifestation or consequence of another mental disorder.

F. The enduring pattern is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., head trauma).

Note. Adapted from DSM-IV (APA, 1994, p. 633)

Table 4.1

Personality disorder, by cluster in DSM-IV

Personality disorder	Cluster	Core behaviour indicator	Specific diagnostic criteria met
Paranoid	Cluster A (Odd-eccentric)	Distrust and suspiciousness of others, such that their motives are interpreted as malevolent.	4 or more
Schizoid		Detachment from social relationships and a restricted range of expression of emotions.	4 or more
Schizotypal		Acute discomfort with reduced capacity for close relationships. It is also characterised by distortions of thinking and perception and eccentric behaviour.	5 or more
Antisocial	Cluster B (Dramatic-emotional or erratic)	Disregard for and violation of the rights of others.	3 or more
Borderline		Instability of interpersonal relationships, self-image, moods, and marked impulsivity.	5 or more
Histrionic		Excessive emotion and attention seeking.	5 or more
Narcissistic		Grandiosity (in fantasy or actual behaviour), need for admiration, and lack of empathy.	5 or more
Avoidant	Cluster C (Anxious-fearful)	Social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation.	4 or more

Dependent	Excessive need to be taken care of, which leads to submissive and clinging behaviour and fears of separation.	5 or more
Obsessive-compulsive	Preoccupation with orderliness, perfectionism, and mental and interpersonal control, at the expense of flexibility, openness, and efficiency.	4 or more
PD not-otherwise-specified (PD-NOS)	"Mixed presentation" – the criteria for any specific personality disorder that are not met or when a personality disorder is not included in the classification.	
	Depressive personality disorder (negativistic attitude and passive resistant to demands for adequate performance).	5 or more
	Passive/aggressive personality disorder (depressive cognitions and behaviour).	4 or more

4.2.2 DSM-5

Within the DSM-5, the definition of personality disorder is virtually unchanged from the DSM-IV and DSM-IV-TR, as illustrated in Figure 4.2 (APA, 2013a, p. 646-647). The categorical personality in Section II identifies ten personality disorders of similar structure associated with functional impairment in everyday life. However, the new system also recognises that distinct clinical syndromes are represented categorically,

and that maladaptive personality traits are represented from a dimensional perspective, highlighting a spectra of personality dysfunction on a continuum. DSM-5 has also included other personality disorder categories: i) personality change due to another medical condition; ii) other specified personality disorder (e.g., "mixed personality features"); and iii) unspecified personality disorder (e.g., specific personality disorder criteria not met). It also implies that an individual's personality patterns are key to the general criteria of a personality disorder.

Figure 4.2

General diagnostic criteria of a personality disorder in DSM-5

General Personality Disorder

Criteria

A. An enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual's culture. This pattern is manifested in two (or more) of the following areas:
   1. Cognition (i.e., ways of perceiving and interpreting self, other people, and events).
   2. Affectivity (i.e., the range, intensity, lability, and appropriateness of emotional response).
   3. Interpersonal functioning.
   4. Impulse control.

B. The enduring pattern is inflexible and pervasive across a broad range of personal and social situations.

C. The enduring pattern leads to clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The pattern is stable and of long duration, and its onset can be traced back at least to adolescence or early adulthood.

E. The enduring pattern is not better explained as a manifestation or consequence of another mental disorder.

F. The enduring pattern is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition (e.g., head trauma).

Note. Adapted from DSM-5 (APA, 2013a, p. 646-647).

4.2.3 DSM-5 Section III Alternative Model for Personality Disorders (AMPD)

Many clinicians and researchers have proposed that a dimensional profile of personality traits associated with a particular personality disorder is best understood using the trait-specified approach (e.g., Trull & Widiger, 2013). In the AMPD, the essential features of a personality disorder are impairments in personality functioning (in self and interpersonal) and the presence of pathological personality traits as illustrated in Figure 4.3 (APA, 2013a, p.761). The alternative "hybrid" dimensional-categorical model has been proposed to separate interpersonal functioning assessments and the expression of pathological personality traits into six specific disorders, namely borderline, obsessive-compulsive, avoidant, schizotypal, antisocial, and narcissistic personality disorders.

Figure 4.3

General diagnostic criteria of a personality disorder in DSM-5, section III

General Criteria for Personality Disorder

The essential features of a personality disorder are

A. Moderate or greater impairment in personality (self/interpersonal) functioning.
B. One or more pathological personality traits.
C. The impairments in personality functioning and the individual's personality trait expression are relatively inflexible and pervasive across a broad range of personal and social situations.
D. The impairments in personality functioning and the individual's personality trait expression are relatively stable across time, with onsets that can be traced back to at least adolescence or early adulthood.
E. The impairments in personality functioning and the individual's personality trait expression are not better explained by another mental disorder.
F. The impairments in personality functioning and the individual's personality trait expression are not solely attributable to the physiological effects of a substance or another medical condition (e.g., severe head trauma).
G. The impairments in personality functioning and the individual's personality trait expression are not better understood as normal for an individual's developmental stage or sociocultural environment.

Note. Adapted from DSM-5 (APA, 2013a, p.761)

Accordingly, personality disorders are characterised by Criterion A: Level of Personality Functioning, and Criterion B: Pathological Personality Traits. It is noted that the dimensional-categorical model still requires significant impairment and inflexibility across a broad range of situations and across time (severity model). In addition, the level of personality functioning can be assessed by the Level of Personality Functioning Scale (LPFS; Morey, 2017), which requires rating the four domains of identity, self-direction (self-functioning), empathy and intimacy (interpersonal functioning) on a scale from 0 (no impairment) to 4 (highest level of impairment) and using self-reported questionnaires. Within each domain, a comprehensive description is given to each criterion (Morey, 2013; Thylstrup et al., 2016). The personality disorder traits (Criterion B) can be assessed by the Personality Inventory for DSM-5 (PID-5; Krueger et al., 2012), which is a 220-item self-reported inventory designed to assess the personality traits. The measure renders 25 facets within five interpretable domain-level factors: negative affectivity, detachment, antagonism, disinhibition, and psychoticism (Bach et al., 2018).

4.2.4 Reliability and validity of DSM-IV vs. DSM-5

In clinical practice, previous editions of Axis II of the DSM-III-R (APA, 1980), DSM-IV (APA, 1994), and DSM-IV-TR (APA, 2000) were originally developed to improve the reliability of assessment, guide treatment and research. They may have shortcomings in inter-rater reliability,

discriminant validity and general coverage of personality disorders. The Structured Clinician Interview for DSM-IV Axis II Personality Disorders (SCID-II) is considered the gold standard semi-structured assessment instrument for personality disorders and for making the major DSM-IV diagnoses (First & Gibbon, 2004). The latest version is the Structured Clinical Interview for DSM-5 (SCID-5), a semi-structured interview guide for making the major DSM-5 diagnoses (First et al., 2016).

To the author's knowledge, several studies have examined the reliability and validity of DSM. For instance, Maffei et al. (1997) reported that the inter-rater reliability coefficients (Cohen K) ranged from 0.48 to 0.98 for categorical diagnosis; the intraclass correlation coefficient ranged from 0.90 to 0.98 for dimensional judgements; and the internal consistency coefficient ranged from 0.70 to 0.94. The study concluded an adequate inter-rater and internal consistency reliability for the SCID-II. Zanarni et al. (2000) also examined both the inter-rater and test-retest reliability of the Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV) and reported a fair to good median inter-rater reliability (0.40-0.75), except for antisocial personality disorder (1.0). In addition, all of the test-retest reliability for Axis II disorders were found to be fair to good, except for narcissistic personality disorder (1.0) and paranoid personality disorder (0.39). The results indicated that both the inter-rater and test-retest dimensional reliability for Axis II were generally higher than those for their categorial counterparts (0.75).

Lobbestael et al. (2011) further compared both the categorial and dimensional inter-rater reliability for Axis II disorders. Results showed moderate to excellent inter-rater agreement of the Axis II disorders (0.77 and 0.94, respectively), while most categorically and dimensionally measured personality disorders showed excellent inter-rater agreement. The mean kappa value of all personality disorders was within the excellent range (0.84), whereas the mean inter-class correlation coefficient for the trait scores was 0.82. All personality disorders were within the excellent range, except from schizotypal, histrionic, narcissistic and the C criteria of antisocial personality disorders (fair inter-rater reliability). The authors highlighted that the more dimensionally the SCID-II pathology, the higher the inter-rater reliability.

Furthermore, valid and reliable personality pathology assessments tools are essential in clinical and research practice. Germans et al. (2010) examined the effectiveness of diagnostic efficiency among psychiatric outpatients using a self-reported version of SCID-II, and analysed the sensitivity, specificity, positive and negative power. The results indicated that SCID-II is an effective self-reported screening tool. Despite this, Berstein et al. (2017) reported 74% of the experts viewed the DSM-IV categorial system as inadequate, and Pull (2011) also indicated that the "quality of the psychometric properties of the categorical model (i.e., interrater reliability, stability over time, discriminant validity, sensitivity and overall coverage) has generally been found poor". Freeman et al. (2013) reported that the

inter-rater reliability of personality disorder diagnoses from the initial DSM-5 field trials had shown good reliability in Borderline Personality Disorder (0.54), but poor reliability in Obsessive-Compulsive Personality Disorder (0.31) and Antisocial Personality Disorder (0.21). The authors also reported that other personality disorders such as Narcissistic Personality Disorder and Schizotypal Personality Disorder occurred too infrequently to be assessed conclusively.

4.2.5 Clinical utility of DSM-IV vs. DSM-5

Personality disorder diagnoses and cluster traits are useful for research (e.g., to determine how prevalent the disorder is and describing or labelling the disorder), as the criterion provides listed symptoms or characteristics within the categorical approach. In a clinical setting, it can be helpful to establish treatment needs or intervention (e.g., psychotherapy) since the behavioural patterns of personality disorder subtype are relatively reliable and observable. For instance, "conduct disorder", "disregard for social norms", "deceitfulness", "impulsivity", "aggressiveness", "irresponsibility" and "lack of remorse" encompass a pervasive pattern of behavioural deficits within Antisocial Personality Disorder.

However, there remain several challenges in improving the clinical utility of personality disorders in the AMPD in: i) categorical classification with dimensional traits or facets; ii) addressing addition and elimination of personality diagnoses; iii) comorbidity among the personality disorder

classification; and iv) a lack of attention to severity of personality dysfunction (O'Donohue et al., 2007).

4.2.6 Categorical classification vs. dimensional traits or facets

Shedler et al. (2010) criticised the applicability of DSM-5 in clinical practice, highlighting that the dimensional traits or facets and the overall assessment system have not been investigated empirically. Although the authors endorsed the dimensional traits as well-recognised clinical constructs (e.g., severity), it is controversial because dimensional traits cannot yield the omitted syndromes. Therefore, the evaluation of dimensional traits cannot be evidenced systematically or empirically, and personality disorders remain the prototypes. Future studies would be required to explore the usefulness of the alternative methodology in assessing personality traits and personality disorders in clinical practice.

4.3 ICD Personality Disorders Classification

4.3.1 ICD-10

The ICD system is a collection of numerical codes that have been assigned to clinical disease disorders by the World Health Organisation to ensure uniform terminologies for clinical and research purposes. ICD-10 defines personality disorder as *"clinically significant conditions and behaviour patterns which tend to be persistent and are the expression of an individual's characteristic lifestyle and mode of relating to self and others. Some emerge early in the course of individual development, as a result of*

both constitutional factors and social experience, while others are acquired later in life" (WHO, 1993, p.122). Codes of specific personality disorders, mixed and other personality disorders are illustrated in Table 4.2. ICD-10 cannot account for the severity of personality disorders. Additionally, personality disorder-not otherwise specified (PD-NOS) is frequently used to capture individuals with fewer personality disorder criteria and less severe psychosocial impairment compared to individuals with specific personality disorders (Wilberg et al., 2008).

Table 4.2

ICD-10 *Personality disorder, by code in ICD-10*

Code	Personality disorder	Core conditions and behaviour patterns
F60.0	Paranoid	Excessive sensitivity to setbacks, unforgiveness of insults; suspiciousness and a tendency to distort experience by misconstruing the neutral or friendly actions of others as hostile or contemptuous; recurrent suspicions, without justification, regarding the sexual fidelity of the spouse or sexual partner; and a combative and tenacious sense of personal rights. There may be excessive self-importance, and there is often excessive self-reference.
F60.1	Schizoid	Withdrawal from affectional, social and other contacts with preference for fantasy, solitary activities, and introspection. There is a limited capacity to express feelings and to experience pleasure.
F60.2	Dissocial	Disregard for social obligations, and callous unconcern for the feelings of others. There is gross disparity between behaviour and the prevailing social norms. Behaviour is not readily modifiable by adverse experience, including punishment. There is a low tolerance to frustration and a low threshold for discharge of aggression, including violence; there is a tendency to blame others, or to offer plausible rationalisations for the behaviour, bringing the patient into conflict with society.
F60.3	Emotionally Unstable	A definite tendency to act impulsively and without consideration of the consequences; the mood is unpredictable and capricious. There is a liability to outbursts of emotion and an incapacity to control the behavioural explosions.

		There is a tendency to quarrelsome behaviour and to conflicts with others, especially when impulsive acts are thwarted or censored.
.30	Impulsive type	Emotional instability and lack of impulse control,
.31	Borderline type	Disturbances in self-image, aims, and internal preferences, by chronic feelings of emptiness, by intense and unstable interpersonal relationships, and by a tendency to self-destructive behaviour, including suicide gestures and attempts.
F60.4	Histrionic	Shallow and labile affectivity, self-dramatisation, theatricality, exaggerated expression of emotions, suggestibility, egocentricity, self-indulgence, lack of consideration for others, easily hurt feelings, and continuous seeking for appreciation, excitement and attention.
F60.5	Anankastic	Feelings of doubt, perfectionism, excessive conscientiousness, checking and preoccupation with details, stubbornness, caution, and rigidity. There may be insistent and unwelcome thoughts or impulses that do not attain the severity of an obsessive-compulsive disorder.
F60.6	Anxious [avoidant]	Feelings of tension and apprehension, insecurity and inferiority. There is a continuous yearning to be liked and accepted, a hypersensitivity to rejection and criticism with restricted personal attachments, and a tendency to avoid certain activities by habitual exaggeration of the potential dangers or risks in everyday situation

F60.7	Dependent	Pervasive passive reliance on other people to make one's major and minor life decisions, great fear of abandonment, feelings of helplessness and incompetence, passive compliance with the wishes of elders and others, and a weak response to the demands of daily life. Lack of vigour may show itself in the intellectual or emotional spheres; there is often a tendency to transfer responsibility to others.
F60.8	Other Specific	"Haltlose" type Immature Narcissistic Passive-aggressive Psychoneurotic
F60.9	Personality Disorder, Unspecified	Personality disorder, unspecified Character neurosis NOS Pathological personality NOS
F61	Mixed and other personality disorders	Personality disorders that are often troublesome but do not demonstrate the specific pattern of symptoms that characterise the disorders described in F60. As a result, they are often more difficult to diagnose than the disorders in F60.-.

Note. Adapted from ICD-10 (WHO, 1993, p.123-129)

4.3.2 ICD-11

According to the ICD-11, "personality disorder is characterised by problems in functioning of aspects of the self (e.g., identity, self-worth, accuracy of self-view, self-direction), and/or interpersonal dysfunction (e.g., ability to develop and maintain close and mutually satisfying relationships, ability to understand others' perspectives and to manage conflict in relationships) that have persisted over an extended period of time (e.g., two years or more). The disturbance is manifest in patterns of cognition, emotional experience, emotional expression, and behaviour that are maladaptive (e.g., inflexible, or poorly regulated) and is manifest across a range of personal and social situations (i.e., is not limited to specific relationships or social roles). The patterns of behaviour characterising the disturbance are not developmentally appropriate and cannot be explained primarily by social or cultural factors, including socio-political conflict. The disturbance is associated with substantial distress or significant impairment in personal, family, social, educational, occupational, or other important areas of functioning" (WHO, 2019).

4.3.2.1 Severity of personality disorder

The ICD-11 classification of Personality Disorders entails the core personality dysfunction, allowing three levels of severity (Mild Personality Disorder, Moderate Personality Disorder, and Severe Personality Disorder). The degree of severity is determined by the extent of problems in interpersonal relationships or the ability and willingness to perform

expected social and occupational roles, or both, which can be assessed by the Standardised Assessment of Severity of Personality Disorder (SASPD; Olajide et al., 2018). ICD-11 has also included the term "personality difficulty", which identifies personality characteristics that may impact treatment or services but do not merit a diagnosis of personality disorder.

4.3.2.2 Personality trait domain qualifiers

ICD-11 also offers an option of specifying one or more prominent trait domain qualifiers (Negative Affectivity, Detachment, Disinhibition, Dissocialise, and Anankastia) as illustrated in Figure 4.4. Trait domains can be assessed by the Personality Inventory for ICD-11 (PiCD; Oltmanns & Widiger, 2018, 2019).

Figure 4.4

ICD-11, trait domain and specific features

Trait domain	Core definition	Specific features
Negative Affectivity	A tendency to experience a broad range of negative emotions with a frequency and intensity out of proportion to the situation.	Anxiety, anger, worry, fear, vulnerability, hostility, shame, depression, pessimism, guilt, low self-esteem, and mistrustfulness. For example, once upset, such individuals have difficulty regaining their composure and must rely on others or on leaving the situation to calm down.
Detachment	A tendency to maintain interpersonal distance (social detachment) and emotional distance (emotional detachment)	*Social detachment* including avoidance of social interactions, lack of friendships, and avoidance of intimacy. *Emotional detachment* including being reserved, aloofness, and limited emotional expression and experience. For example, such individuals seek out employment that does not involve interactions with others.
Dissociality	Disregard for the rights and feelings of others, encompassing both self-centeredness and lack of empathy.	*Self-centeredness* including entitlement, grandiosity, expectation of others' admiration, and attention-seeking. *Lack of empathy* including being deceptive, manipulative, exploiting, ruthless, mean, callous, and physically aggressive, while sometimes taking pleasure in others' suffering. For example, such individuals respond with anger or denigration of others when they are not granted admiration.
Disinhibition	A tendency to act rashly based on immediate external or internal stimuli (i.e., sensations, emotions, thoughts), without consideration of potential negative consequences.	Impulsivity, distractibility, irresponsibility, recklessness, and lack of planning. For example, such individuals may be engaged in reckless driving, dangerous sports, substance use, gambling, and unplanned sexual activity.
Anankastia	A narrow focus on one's rigid standard of perfection and of right and wrong, and on controlling one's own and others' behaviour and controlling situations to ensure conformity to these standards.	*Perfectionism* including concern with rules, norms of right and wrong, details, hyper-scheduling, orderliness, and neatness. *Emotional and behavioral constraint* including rigid control over emotional expression, stubbornness, risk-avoidance, perseveration, and deliberativeness. For example, such individuals may stubbornly redo the work of others because it does not meet their standards.

Note. Adapted from Bach, B., & First, M. B. (2018). Application of the ICD-11 classification of personality disorders. *BMC Psychiatry*, *18*(1), 351. https://doi.org/10.1186/s12888-018-1908-3

4.3.2.3 Borderline pattern qualifier

Clinicians may also identify a borderline pattern qualifier using the Borderline Pattern Specifier inventory (BPS; Oltmanns & Widiger, 2019). Although trait qualifiers are not within the diagnostic categories, they represent a set of dimensions that correspond to the underlying structure of personality. Many trait qualifiers may be applied as necessary to describe personality functioning, and individuals with more severe personality disturbance tend to have a greater number of prominent trait domains (Bach & First, 2018; Ekselius et al., 2018).

4.3.3 Reliability and validity of ICD-10 vs. ICD-11

ICD-10 includes nine specific personality disorders that have limited evidence of validity and predictive value; whereas, in ICD-11, personality disorder is conceptualised in terms of severity, continuous with personality structure, which is compatible with DSM AMPD. Reed (2018) highlighted four major problems with ICD-10. First, personality disorders were underdiagnosed compared with other mental disorders. Second, merely two out of ten specific personality disorders (emotionally unstable personality disorder-borderline type and dissocial personality disorders) were included as specifiers. Third, the comorbidity of personality disorders was frequently high, with "severe" personality disorders meeting the requirements of multiple diagnoses. Fourth, the expression of different symptoms evolves continuously across the lifespan, therefore modest changes may move an individual either above or below a diagnostic

threshold in a categorical approach. Ekselius (2018) criticised that the six personality domains in ICD-11 also do not fully correspond with the specific personality disorders in ICD-10 as the domain traits are not inherently pathological, but rather represent a profile of underlying personality structure. These domains can be applied to individuals without any personality disorder and to those with severe disorder. Specific personality disorders in ICD-10 were eventually abandoned in favour of the five broad traits domains.

Following from this, ICD-11 has provided a dimensional description of personality disorders based on the severity of personality dysfunction rather than specific personality features. Factor analytic strategies and clinical reasoning were used when coding the clinical characteristics into several personality domains. For instance, Bach et al. (2017) examined DSM-5 trait facets and ICD-11 traits in psychiatric and normal samples, and proposed that the personality traits can be organised into five domain structures as well as "higher-order" models of personality and psychopathology. These domains also resembled the DSM-5 domain trait system, involving a scoring algorithm for ICD-11 personality disorder domain (Oltmanns & Widiger, 2019).

Mulder et al. (2016) administered SCID assessment and assigned personality disorder DSM-5 symptoms into ICD-11 domains. The authors indicated that ICD-11 personality disorder domains were only partially

validated by the five domains. The disinhibited domain was loaded onto a dissocial/disinhibited factor, whereas the borderline domain incorporated borderline, histrionic and narcissistic symptoms. In terms of reliability, Starcevic (1997) reported that the inter-rater reliability of diagnostic agreement in SCID-II, modified for the DSM-IV and ICD-10 Diagnostic Criteria for Research (ICD-10-DCR), was 0.78 (kappa) for any personality disorder. The inter-rater reliability ranged from 0.51 for schizoid personality disorder to 0.83 for dependent personality disorder.

The validity of ICD-11 using several self-reported measures was conducted and shown that ICD-11 domains were aligned with the five-factor model and dimensional-trait model (Oltmanns, 2021; Oltmanns & Widiger, 2018; 2019). The findings supported the validity of the ICD-11 trait domains, suggesting the domains converged predictably with external criteria. As hypothesised, negative affectivity is associated with neuroticism, detachment with low extraversion, dissociality with low agreeableness, anankastia with high orderliness, and disinhibition with low orderliness. Somma et al. (2020) also examined the reliability and construct validity of The Personality Inventory for ICD-11 (PiCD) scales in adults, by administering the Five-Factor Model Rating Form (FFMRF, Costa & McCrae, 1995); the Big Five Inventory (BFI, John & Srivastava, 1999) and the Personality Inventory for DSM-5 Short Form (PID-5, APA, 2013b). The findings suggested PiCD scales had an adequate internal consistency, test-retest reliability, and correlations with five-factor model domains and their

maladaptive variants. All PiCD scales were significantly associated with the impairment in personality functioning. Carnovale et al. (2020) also examined the reliability, structural and concurrent validity and method variance of PiCD by administering Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2; Drayton, 2009). The authors reported adequate internal consistency reliability (0.77-0.87), as expressed by coefficient categorical omega. The relationships between PiCD and MMPI-2 showed good validity for negative affectivity, detachment, and dissocial domains. However, the validity for disinhibition and anankastia domains was relatively lower than other domains. Clark et al. (2021) suggested that ICD-11 is the only classification model that includes both personality disorder dysfunction-severity and trait scales which were statistically evidenced. Additionally, the convergent and discriminant validity were reported to be excellent in the majority of the trait domains. Crego and Widiger (2020) administered the Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ; Livesley & Jackson, 2009) and the Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1993), PiCD and PID-5 in patients with a history of mental health treatment. The results indicated meaningful and expected convergence of the ICD domains with SNAP and DAPP-BQ within ICD-11, DSM-5 and five-factor model.

4.3.4 Clinical utility of ICD-11

There has been limited evidence of the utility of ICD-11, although research in DSM-5 can reasonably be translated into ICD-11 (Mulder & Tyrer, 2019). Mulder (2021) stated that the ICD-11 levels of severity complement the DSM-5 impairment levels of personality functioning, and both have a common feature of personality trait domains capturing categorial personality disorders (Bach et al., 2018). ICD-11 was also widely used in the world populations (e.g., Lotfi et al., 2018; Lugo et al., 2019) as well as psychiatric populations (e.g., Sellbom et al., 2020).

The Anankastia Domain Qualifier

The Anankastia Domain Qualifier is not considered as a domain in the AMPD model. Studies have reported mixed findings in respect of the relationship of the disinhibited and anankastia domains. Oltmanns and Widiger (2018) and Somma et al. (2020) reported a four-factor model including a bipolar disinhibition-anankastia domain, whilst Bach et al. (2017) and Sellbom et al. (2020) supported a five-factor model in which anankastia and disinhibition are two distinct domains (Mulder, 2021).

Borderline Pattern Qualifier

Research has depicted that the borderline personality disorder construct can be accounted for by empirically derived dimensions of personality traits and functioning (e.g., Miller et al., 2012; Sellbom et al., 2014).

Mulder et al. (2020) administered SCID-II DSM on patients with depression and reordered the five domains independently, and reported that the borderline pattern qualifier is associated with the severity of the personality pathology. The borderline pattern qualifier was strongly associated with the negative affective, dissocial and disinhibited domains, suggesting it may be a redundant addition to the ICD-11 (Mulder, 2021).

4.4 Diagnostic and Assessment Methods in relation to comorbid personality disorders

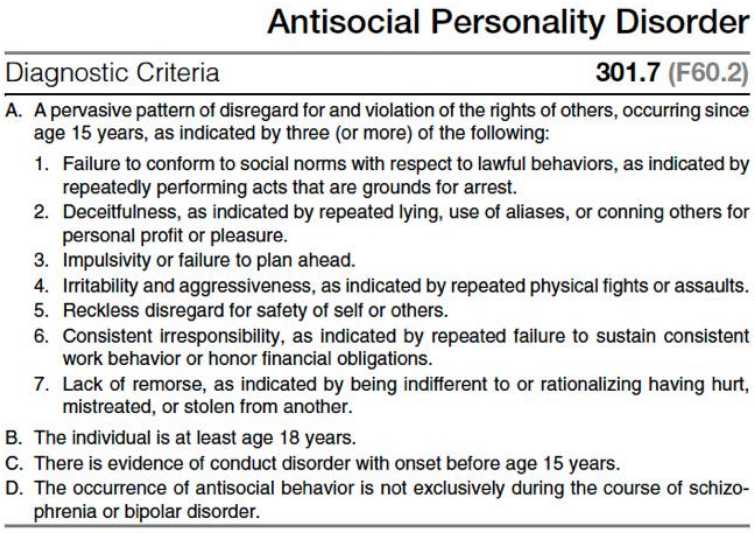
4.4.1 Diagnostic assessment tools

4.4.1.1. Clinical assessment of Antisocial Personality Disorder (ASPD) and psychopathy

The criteria for ASPD are fixed and explicit in the DSM classification system, requiring four diagnostic criteria to be met, as illustrated in Figure 4.5 (APA, 2013a, p. 659). ASPD has included the criteria of conduct disorder, indicating callous-unemotional specifier in DSM-5. The criteria of conduct disorder in DSM-5 are illustrated in Figure 4.6.

Figure 4.5.

DSM-5 Antisocial Personality Disorder (ASPD)



Antisocial Personality Disorder

Diagnostic Criteria **301.7** (F60.2)

A. A pervasive pattern of disregard for and violation of the rights of others, occurring since age 15 years, as indicated by three (or more) of the following:
   1. Failure to conform to social norms with respect to lawful behaviors, as indicated by repeatedly performing acts that are grounds for arrest.
   2. Deceitfulness, as indicated by repeated lying, use of aliases, or conning others for personal profit or pleasure.
   3. Impulsivity or failure to plan ahead.
   4. Irritability and aggressiveness, as indicated by repeated physical fights or assaults.
   5. Reckless disregard for safety of self or others.
   6. Consistent irresponsibility, as indicated by repeated failure to sustain consistent work behavior or honor financial obligations.
   7. Lack of remorse, as indicated by being indifferent to or rationalizing having hurt, mistreated, or stolen from another.

B. The individual is at least age 18 years.

C. There is evidence of conduct disorder with onset before age 15 years.

D. The occurrence of antisocial behavior is not exclusively during the course of schizophrenia or bipolar disorder.

Note. Adapted from American Psychiatric Association (2013a, p659) *Diagnostic and statistical manual of mental disorders: DSM-5.* 5th edn. Washington, D.C.: American Psychiatric Publishing.

Figure 4.6

DSM-Conduct disorder

Conduct Disorder

Diagnostic Criteria

A. A repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of at least three of the following 15 criteria in the past 12 months from any of the categories below, with at least one criterion present in the past 6 months:

Aggression to People and Animals

1. Often bullies, threatens, or intimidates others.
2. Often initiates physical fights.
3. Has used a weapon that can cause serious physical harm to others (e.g., a bat, brick, broken bottle, knife, gun).
4. Has been physically cruel to people.
5. Has been physically cruel to animals.
6. Has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery).
7. Has forced someone into sexual activity.

Destruction of Property

8. Has deliberately engaged in fire setting with the intention of causing serious damage.
9. Has deliberately destroyed others' property (other than by fire setting).

Deceitfulness or Theft

10. Has broken into someone else's house, building, or car.
11. Often lies to obtain goods or favors or to avoid obligations (i.e., "cons" others).
12. Has stolen items of nontrivial value without confronting a victim (e.g., shoplifting, but without breaking and entering; forgery).

Serious Violations of Rules

13. Often stays out at night despite parental prohibitions, beginning before age 13 years.
14. Has run away from home overnight at least twice while living in the parental or parental surrogate home, or once without returning for a lengthy period.
15. Is often truant from school, beginning before age 13 years.

B. The disturbance in behavior causes clinically significant impairment in social, academic, or occupational functioning.

C. If the individual is age 18 years or older, criteria are not met for antisocial personality disorder.

Note. Adapted from American Psychiatric Association (2013a, p469-470) *Diagnostic and statistical manual of mental disorders: DSM-5.* 5th edn. Washington, D.C.: American Psychiatric Publishing.

However, the diagnosis of ASPD has historically lacked empirical grounding from research, therefore the reliability inferred in the DSM has been questioned (Coolidge et al., 1990; Hare & Hart, 1995; Morey 1988; Widiger

et al., 1996). Eden et al. (2015) reported poor predictive validity in a prison sample, particularly in predicting institutional misconduct (Crego & Widiger, 2015).

DSM-IV was criticised for emphasising anti-social behaviour and criminality at the expense of the underlying personality structure and interpersonal deficits, which resulted in over-diagnosis within forensic settings whilst simultaneously leading to an under-diagnosis in community settings. Whilst the DSM-5 has attempted to address some of these issues, it is noted that defining a syndrome largely by behaviours considered unacceptable by society poses ethical challenges for medical diagnosis (Yakeley & Williams, 2014). However, the DSM-5 and ICD-10 still differ somewhat, with the DSM-5 having conduct disorder as a prerequisite of ASPD and the ICD-10 retaining its emphasis on the interpersonal deficits of the disorder.

Psychopathy is a clinical construct defined by a constellation of interpersonal, affective, lifestyle, and antisocial traits and behaviours. The most widely used instruments for its measurement are the Psychopathy Checklist-Revised PCL-R (Hare, 2003) and its derivatives.

Psychopathy is considered as one of the most generalisable identified risk factors so far due to the fact that PCL scales are included in various actuarial and structured-clinical risk assessment procedures, as illustrated in Figure 4.7.

Figure 4.7

Items and factors in Hare PCL scales

Table 1
Items and Factors in the Hare PCL Scales

PCL-R	PCL:YV	PCL:SV
Factor 1 (F1)		Part 1 (Factor 1)
Interpersonal	Interpersonal	Interpersonal
1. Glibness/superficial charm	1. Impression management	1. Superficial
2. Grandiose sense of self worth	2. Glibness/superficial charm	2. Grandiose
4. Pathological lying	4. Pathological lying	3. Deceitful
5. Conning/manipulative	5. Manipulation for personal gain	
Affective	Affective	Affective
6. Lack of remorse of guilt	6. Lack of remorse	4. Lacks remorse
7. Shallow affect	7. Shallow affect	5. Lacks empathy
8. Callous/Lack of empathy	8. Callous/Lack of empathy	6. Doesn't accept responsibility
16. Failure to accept responsibility	16. Failure to accept responsibility	
Factor 2 (F2)		Part 2 (Factor 2)
Lifestyle	Behavioral	Lifestyle
3. Need for stimulation	3. Stimulation-seeking	7. Impulsive
9. Parasitic lifestyle	9. Parasitic orientation	9. Lacks goals
13. No realistic, long-term goals	13. Lack of goals	10. Irresponsibility
14. Impulsivity	14. Impulsivity	
15. Irresponsibility	15. Irresponsibility	
Antisocial	Antisocial	Antisocial
10. Poor behavioral controls	10. Poor anger control	8. Poor behavioral controls
12. Early behavioral problems	12. Early behavior problems	11. Adolescent antisocial behavior
18. Juvenile delinquency	18. Serious criminal behavior	12. Adult antisocial behavior
19. Revoke conditional release	19. Serious violations of release	
20. Criminal versatility	20. Criminal versatility	

Note. PCL-R = Psychopathy Checklist–Revised; PCL:SV = Psychopathy Checklist: Screening Version; PCL:YV = Psychopathy Checklist: Youth Version. The items are reprinted with permission of the copyright holders, Multi-Health Systems and R. D. Hare. Note that the item titles cannot be scored without reference to the formal criteria contained in the published manuals. PCL-R Items 11 (promiscuous sexual behavior) and 17 (many short-term marital relationships) contribute to the total score but do not load on any factors. PCL:YV Items 11, impersonal sexual behavior, and 17, unstable interpersonal relationships, contribute to the total score but do not load on any factor. F1 and F2 are the original PCL-R factors, but with the addition of Item 20.

Note. Adapted from Hare, R. D. (2016). Psychopathy, the PCL-R, and criminal justice: Some new findings and current issues. *Canadian Psychology/Psychologie Canadienne, 57*(1), 21–34. https://doi.org/10.1037/cap0000041

The robustness of the psychopathy is significantly more well established than the severity of the personality pathology. Psychopathy has different entities compared with the severity of functioning dysfunction within ICD-11. Despite this, both imply a clinical need in informing prognosis and treatment. The assessment of psychopathy also has important clinical utility in the criminal justice system, particularly in predicting criminality, violence, recidivism, and sexual aggression (e.g., Hare & Neumann, 2008).

It may be worth considering the construct of psychopathy as part of the assessment, but not necessarily as a specifier.

The latest classification system in the DSM–5 operationalises psychopathy as ASPD. Section III of DSM-5 has included a psychopathy specifier. However, it has also been criticised for its limitations in capturing the full psychopathy construct (Crego & Widiger, 2015). Widiger et al. (2016) compared the DSM-5 ASMPD model (Section II and Section III) based on the conceptualised model using structured interviews and clinical ratings in: i). Structured Clinical Interview for DSM–IV Axis II Disorders (SCID-II ASPD; First et al., 1997); ii) DSM–5 ASPD Impairment Criteria Interview (APA, 2013a); iii) DSM–5 Clinicians' Personality Trait Rating Form (PTRF; APA, 2011); iv) Personality Inventory for DSM–5 (PID-5); as well as different models of psychopathy measures in v) Psychopathy Checklist—Revised (PCL-R; Hare, 2003); vi) Triarchic Psychopathy Measure (TriPM; Patrick, 2010); and vii) Psychopathy Personality Inventory—Revised (PPI-R; Lilienfeld & Widows, 2005). The ICD-10 has included dissocial personality disorder in the ICD-10 international personality disorder examination (IPDE).

The authors examined the validity of all self-reported and interview-based measures utility in relation to antisocial and psychopathic traits in offender samples. The results highlighted that Section III ASPD (i.e., PTFT) outperformed Section II ASPD (i.e., SCID-II) in predicting psychopathic

traits (i.e., PCL-R), implying that ASPD has moved closer to the construct of psychopathy. The authors also reported that ASPD Section III and impairment criteria had greater correlation with psychopathy measures than ASPD Section II; and that Criterion A of ASPD had strengthened the prediction of ASPD and psychopathy as well as personality traits, due to greater emphasis on antagonism traits (e.g., callousness). It was also reported that the psychopathy specifier outperformed ASPD Section II in predicting Facet 1 items of PCL-R. The research could have important implications in laying the future framework for using the dimensional model of ASPD. Additionally, Crego and Widiger (2014) investigated the convergent and discriminant validity of psychopathy and DSM-5 ASPD using several personality measures in community samples and reported a distinct relationship between psychopathy and ASPD.

4.4.1.2 Clinical assessment of Emotionally Unstable Personality Disorder

The criteria for Emotionally Unstable Personality Disorder (EUPD) within ICD-10 defines EUPD as a personality disorder, characterised by "a definite tendency to act impulsively and without consideration of the consequences; the mood is unpredictable and capricious. There is a liability to outbursts of emotion and an incapacity to control the behavioural explosions". Two types can be distinguished, namely 1) the impulsive type, characterised by "emotional instability and lack of impulse control", and 2) the borderline type, characterised by "disturbances in self-image, aims, and internal preferences, by chronic feelings of emptiness, by intense and unstable

interpersonal relationships, and by a tendency to self-destructive behaviour, including suicide gestures and attempts."

The division of EUPD or BPD was investigated, and the factor analysis results showed that factor one closely corresponds with the borderline subtype; and factor two also closely corresponds with the impulsive subtype. Both factors were considered as core features of borderline personality. The study supported maintaining the subtype classification of EUPD, indicating the subtypes have important implications for research and treatment in the future (Whewell et al., 2001).

Borderline features

Within the ICD-11, clinicians may also identify borderline features using the Borderline Pattern Specifier inventory (BPS; Oltmanns & Widiger, 2019). Although trait qualifiers are not within the diagnostic categories, they represent a set of dimensions that correspond to the underlying structure of personality. Many trait qualifiers may be applied as necessary to describe personality functioning, and individuals with more severe personality disturbances tend to have a greater number of prominent trait domains (Bach & First, 2018; Ekselius et al., 2018). The inter-rater reliability of Borderline Pattern Specifier was shown to be robust; the BPD criteria was not isomorphic with whole ratings of BPD, despite being highly correlated (Mulay et al., 2019).

The construct "emotionally-unstable personality disorder" in ICD-10 has yielded significant clinical and empirical utility in both psychiatric and research settings. Clinicians and researchers also communicate clinical diagnoses and pathology in terms of prototypes or categories (e.g., clinical records), which also have significant value in practice. The aforementioned gaps may need to be addressed in order to strengthen the rigorousness of personality disorder assessment using a dimensional-categorical diagnostic strategy.

4.4.2 Comparison of the DSM-5 AMPD and ICD-11 personality disorder model in evaluating personality disorders

The ICD-11 classification system has made no explicit effort to account for comorbidity of personality disorders, although it does indicate that personality disorders are frequently comorbid with each other. The distinction between comorbid personality disorders and clinical syndromes remains ambiguous in ICD. Widiger and Simonsen (2005) found similarities among the ICD-11 and DSM-5 AMPD and illustrated how most of the dimensional scales can be well integrated within four broad domains of adaptive and maladaptive personality functioning, which serve as the top level of a hierarchy: two internalising dimensions (emotional dysregulation, and introversion vs. extroversion) and two externalising dimensions (antagonism vs. compliance, and impulsivity vs. constraint). The authors suggested that personality disorders can be incorporated within this hierarchical structure, as illustrated in Figure 4.8, and how the existing

personality disorder construct can be recovered through diagnostic algorithms in personality trait scales. It was proposed that current systems of different personality disorder categories should be elaborated and refined as prototypes, so that both empirically validated instruments and descriptions of personality traits can be included.

Figure 4.8

ICD-11 and DSM-5 Alternative Model of Personality Disorders classifications of personality disorders

Diagnosis	ICD-11 severity of personality dysfunction	DSM-5 AMPD Criterion A: level of personality functioning
No disorder	None	0: No impairment (healthy functioning)
	Personality difficulty	1: Some impairment
Disorder	Mild personality disorder	2: Moderate impairment
	Moderate personality disorder	3: Severe impairment
	Severe personality disorder	4: Extreme impairment
Higher Order	**ICD-11 trait domain qualifiers**	**DSM-5 AMPD Criterion B: trait domains**
Internalizing	Negative Affectivity	Negative Affectivity
	Detachment	Detachment
	Anankastia	(Rigid Perfectionism and Perseveration)[a]
Externalizating	Dissociality	Antagonism
	Disinhibition	Disinhibition
	Borderline pattern[b]	Psychoticism[c]

AMPD, Alternative Model of Personality Disorders.
[a]These are facets from the domains of (low) Disinhibition and (high) Negative Affectivity, respectively.
[b]This additional pattern is not a trait domain, but was included for the purpose of continuity with clinical practice.
[c]These domain features are only included in the DSM-5 model consistent with the DSM tradition of considering schizotypal disorder as a personality disorder feature.

Note. Adapted from Bach, B., & Bernstein, D. (2018). Schema therapy conceptualisation of personality functioning and traits in ICD-11 and DSM-5. *Current Opinion in Psychiatry*, *32*, 1. https://doi.org/10.1097/YCO.0000000000000464

Conclusions

Previous categorical classification of personality disorders within the DSM-IV and ICD-10 have been criticised as not fit for purpose due to overlooking

the dimensional nature of personality, excluding the thresholds for personality disturbances of clinical significance and lacking the description of the problem (e.g., Bermstein et al., 2007; Guelfi, 2013). Although the diagnostic approaches in DSM-5 and ICD-11 have taken quite different approaches, both have highlighted the importance of clinical utility and diagnostic validity. Both classification systems allow clinicians to apply trait domain qualifiers to depict clinical reality and temporal stability of personality, portraying a distinctive diagnostic profile of personality disorder. The trait domains may inform clinicians regarding the focus and style of treatment.

There are limitations on both classifications, especially challenges in research. The trait-domain model would require a significantly larger sample size than the categorical model in order to achieve the satisfactory power calculation for analysing meaningful data. This can exacerbate the ongoing challenges in clinical settings, particularly in forensic population where the sample size in research is usually small. Categorical diagnoses have the advantages of informing clinical treatment which are empirically established. For instance, Dialectical Behaviour Therapy (e.g., Bloom et al., 2012) and Schema Therapy (e.g., Bernstein et al., 2021) are used to treat personality disorders. The multi-dimensional assessment can be very lengthy and over-complicated, therefore the likelihood of the tools or measures not being routinely used may increase. The question of whether this approach can be used in a systematic manner across different clinical

settings and client groups in reality is debatable. Furthermore, there is a risk of over-reliance on specifiers being used for clinical decision-making, thus ignoring the empirical ground of research findings. For instance, ICD-11 has removed the BPD, stating borderline pattern is not a trait domain but a domain that is included purely for clinical practice purposes.

Most importantly, it is clear that the combinations of trait qualifiers or the categorical-dimensional assessment model cannot account for the personality comorbidities. Having said this, given the constructs are operationally defined, yet uncertain, future research in personality comorbidities would be very useful. The changes of the structure and process in ICD-11 seem to be over-simplified, which may also contribute to increased discrepancies in accounting for comorbid personality disorders between the DSM-5 and ICD-11. This is likely to be over-complicated when assessing severely complex comorbid personality disorders. The number of diagnosed personality disorders or traits can have more variability in functioning than specific personality disorders (Kvarstein & Karerud, 2013).

Recommendations for Assessment

There are a number of methods to assess and best account for comorbid personality disorder. The three most commonly used methods are a) an unstructured clinical interview (usually guided by a diagnostic manual) to establish the presence of the traits characteristic of a diagnosis across a

range of contexts and situations, b) psychometric questionnaires, and c) semi-structured interviews such as the International Personality Disorder Examination (IPDE), SCID, or the PCL-R. As with most assessment methods, there are perceived pros and cons to each. Psychometric tools have been criticised for over-diagnosing personality pathology. Semi-structured interviews are often thought to be the most reliable method of assessing personality disorders, although they rely on the honesty of the person being assessed. A combination of methods is, therefore, recommended for personality assessment, along with a file review, and information from a parent or caregiver may be useful.

A collaborative development of the ICD-11 with DSM-V that aligns the two classification systems more closely may be what the future holds. It is recognised that future diagnostic assessment is likely to lie in a multi-dimensional approach using multiple assessment methods. However, it could be enhanced by taking account of the following within the personality disorder classification:

- retaining the ten specific personality disorders, particularly specific personality disorder specifier in emotionally unstable personality disorder;
- retaining explicit criteria as part of diagnostic threshold (e.g., conduct disorder account for the callous-unemotional traits in ASPD);
- incorporating the dimensional-trait domains;

- considering the construct of psychopathy assessment (e.g., PCL-R) as part of the assessment, but not necessarily as a specifier;
- including the levels of severity in personality functioning (Mild, Moderate, and Severe).

The proposed classification systems may allow clinicians to employ multiple-dimensional assessment measures which are neither too over-simplified nor over-complicated, portraying a distinctive diagnostic profile of personality disorder with/without other personality disorder comorbidities. A collaborative development of the ICD-11 with DSM-V would align the two classification systems.

Future research may focus on developing a greater understanding of the assessment methods for enhancing growth and adaptation that are beyond ameliorating psychological dysfunction purposes. Idealistically speaking, removing the over-complication in classification systems and an enhanced evidence-based model would provide greater value in clinical utility and validity. Future classification systems should also take account of personality disorder comorbidities.

More specific assessment of personality disorder comorbidities is useful to for clinical practice. Clinicians may find it helpful to develop a comprehensive understanding of a patient's problems, particularly of possible underlying personality dimensions which may inform treatment

responsivity. The robustness of the assessment may enhance the efficacy of treatment, thus management of personality disorder comorbidities may improve violence and clinical outcomes.

Chapter 5

The assessment and intervention of comorbid antisocial personality disorder and paranoid personality disorder: Case study and literature review

Abstract

Background: Society and individuals within society can be caused substantial harm and distress from violent acts committed by offenders with personality disorders. Despite the controversies over the treatability of personality disorders, offence-focused rehabilitation programmes are commonly delivered to reduce violence and recidivism in forensic settings. Although most evidence-based treatments are transdiagnostic, there are limited studies that present the psychological approaches of working with people who have offended and presented with comorbid personality disorders and substance misuse. The case study aimed to provide clinicians with insights into assessment and treatment, and evaluate the effect of personality disorder comorbidities on violent behaviours and responsivity to treatment.

Methods: A case study involving the psychological assessment and a case formulation of a male forensic psychiatric patient (Client A) who committed a number of serious violent offences. The case analysed highlighted

findings from literature review, and personality assessments were used to highlight Client A's personality structure using psychometric measures. A 28-week schema-informed cognitive behavioural treatment (CBT) was delivered and the effectiveness of the intervention was evaluated based on violence and mental health outcomes.

Results: The results showed that the intervention was effective in reducing verbal, physical and reactive forms of violence and improving anxiety and depression. However, proactive violence and symptoms of somatisation and paranoid ideations remained prominent.

Conclusions: An integrated schema and cognitive-behavioural-based intervention is likely to provide a positive effect in reducing violence and improving mental health outcomes for individuals with comorbid personality disorders. It is recommended that randomised controlled trials of schema-informed CBT should be piloted in offenders with comorbid personality disorders.

5.1 ASPD in forensic settings

ASPD is defined in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) (American Psychiatric Association, 2013) as *"pervasive pattern of disregard for and the violation of the rights of others"* (p. 659), and can be characterised by disregard for social norms, deceitfulness, impulsivity, irritability/low threshold for aggression or violence, reckless disregard for the safety of others, consistent irresponsibility, and lack of remorse. ASPD applies only at age 18 or above, to individuals who have presented Conduct Disorder (CD) prior to age 15. However, the diagnosis of CD is not always fully assessed.

ASPD is the most common personality disorder in people who have offended, as the diagnostic criteria of disregarding the social norms and safety of others, low threshold for aggression or violence, lack of remorse (ability to learn from offence) overlap with the reasons why offenders enter the criminal justice system (Fazel et al., 2016). ASPD is prevalent in approximately 50% (+ 46-84 %) of offenders, ten times more than in the general population (Azevedo et al., 2020, Coid, 2002; Coid & Ullrich, 2010; Fazel & Danesh, 2002; Fazel et al., 2016; Rotter et al., 2004; Moran,1999; Werner, 2015). Between 23-55% of forensic psychiatric patients met the criteria of ASPD (Coid, 2003; Ogloff et al., 2015; Shepherd, Campbell, & Ogloff, 2018). An emerging ASPD was also very prevalent in youth offenders, showing a figure as high as 62% in a meta-analysis (Livanou et al., 2019). Epidemiological studies reported that the prevalence of

psychiatric patients (outpatient services) diagnosed with ASPD ranged between 1-18% (Zimmerman et al., 2008). ASPD was strongly associated with a history of previous convictions among patients admitted to secure forensic psychiatry services. These convictions included all violence (both major violence and minor violence) and sexual offences (Coid et al., 1999). This study also found that ASPD was associated with repetitive violence, victim and perpetrator injury, and violence when intoxicated (Coid et al., 2017). The comorbidity of ASPD + SU was shown to confer higher levels of aggression, impulsivity, and psychopathy traits relative to SUD-only and the control group (Alcorn et al., 2013).

Psychopathy is a construct that is becoming increasingly more important to the clinical and criminal justice systems as well as to society as a whole. It is associated with violence and is prevalent in 10-35% of the forensic population as opposed to 1-4% of the general population, using the trait-based personality criteria of the Psychopathy Checklist-Revised (PCL-R) (Coid et al., 2009; Coid & Ullrich, 2010, Hare et al., 2000; Sanz-García et al., 2021). Core personality characteristics of psychology are more closely related to Other Cluster B personality disorders (narcissistic and histrionic) than to ASPD.

Psychopathy was shown to account for 18.7% of violent incidents among the UK household population despite showing a low prevalence rate of 2.1% (Coid & Yang, 2011). However, the majority of violent offending was

committed by a small number of persistently violent males, characterised by the early onset of violent criminality, SU, ASPD and nonviolent criminality (Falk et al., 2014). Overemphasis in the involvement of criminality could obscure the nature of psychopathy which may not necessarily take place in criminal form.

Psychopathy is also responsible for serious violent offending (e.g., Blais et al., 2014; Delisi et al., 2016; Porter, Campbell, Woodworth, & Birt, 2001). The association between psychopathy and homicide was shown to be significant, particularly in sexual homicide, sadistic homicide, serial homicide and multi-offender (Fox & Felisi, 2019). Offenders with ASPD + P were shown to exhibit more severe criminal behaviour than offenders with ASPD-only (Coid & Ullrich, 2010; Kosson et al., 2006; Riser et al., 2013; Shephard et al., 2018). Individuals with ASPD and -P usually commit reactive aggression or impulsive violence, motivated by situational provocation or emotional dispute. Reactive violence was typically committed by emotionally driven or maladjusted individuals. Those with ASPD and +P also commit both reactive and proactive aggression, but also instrumental or premeditated aggression motivated by external goal, monetary gain or elevated social status, and these individuals were described as manipulative and callous-unemotional (Blais et al., 2014; Woodworth & Porter, 2002). Available evidence suggested that psychopathy has a substantial impact on violence in both the general and forensic populations (Azevedo et al., 2020; Blais et al., 2014; Gregory et

al., 2012; Walsh et al., 2009). Studies indicated that psychopathy and substance misuse also manifest clinical presentation (Taylor, 2006; Rutherford, Cacciola, Alterman, 2016), but a recent study reported that ASPD + P mediates the link between SU and violence, of which drugs and alcohol play an integral role in manifesting the violence (Thomson et al., 2020).

Previous studies reported that both ASPD and offending behaviour are predictors of suicide attempts, particularly non-serious suicide attempts (Garvey & Spoden, 1980). It was found that SU mediated the association between ASPD + P and suicide (Douglas et al., 2008). People with ASPD and comorbid anxiety disorders were more likely to have comorbid major depression, substance dependence, and suicidal ideations and attempts, compared to those with ASPD-alone or anxiety disorder-alone or with neither disorder (Goodwin & Hamilton, 2003). A longitudinal study investigated the trajectories of SU from adolescence to adulthood, and found that chronic substance misuse was associated with ASPD, depression and anxiety disorder in a community-based sample (Brook et al., 2016). The shared genetic risk between major depression and drug and alcohol use was largely explained by the genetic effects on ASPD, which in turn was associated with risk of each psychiatric condition (Fu et al., 2002).

5.2 Paranoid Personality Disorder and prevalence in forensic settings

Paranoid Personality Disorder (PPD) is defined in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) (American Psychiatric Association, 2013) as a pervasive distrust and suspiciousness of others, such that their motives are interpreted as malevolent. The life course begins by early adulthood and presents in a variety of contexts. PPD is exclusively separated from severe mental illnesses such as schizophrenia and delusional disorder. The clinical reality of PPD is severe; however, the PPD diagnosis has been clinically neglected by empirical research, and individuals with PPD are generally reluctant to participate in voluntary studies (Carroll, 2009; Lee, 2017). Carroll (2009) outlined the evidence relating to PPD and violence. PPD is prevalent in 23%-67% in prison population (Blackburn & Coid, 1999; Coid et al., 2002; Warren et al., 2002; Ullrich et al., 2008) and 7-10% in the forensic psychiatric hospital population (Blackburn et al., 1990; Coid et al., 1999), as opposed to 1-4% of the general population (Coid et al., 2006; Lee, 2017; Torgersen, 2005).

PPD was found to be associated with violence, particularly its severity and frequency, after controlling the effects of other psychotic-like experiences and comorbid SU (Coid et al.,2016) and repetitive violence and violence when intoxicated (Coid et al., 2017). It was also found to be associated with offending behaviours such as reactive aggression, pre-emptive threats, stalking and sexual violence (Bouthier & Mahé, 2019; Carroll, 2009; Esbec & Echeburúa, 2010). Within the prisoner population, PPD was associated with violence against inmates and making/hoarding weapons

(Coid, 2002), and violence associated with excessive litigation (Muller & Lester, 2006). In a meta-analysis conducted by Bettencourt et al. (2006), the personality feature of high rumination (e.g., paranoid ideation) was associated with provoked aggression, suggesting that individuals with cognitive distortion (thinking and perception) have a low inhibitory threshold when feeling provoked. It was suggested that domestic violence, motivated by suspicions as to the fidelity of intimate partners, is prevalent among individuals with PPD. Carroll (2009) highlighted the pathways to violence in paranoid individuals, in the context of cognitive deficits, poor affect regulation and fragmented self-esteem and jealousy regarding social status. Violence is also frequently expressed in the form of "threat/control override" in clinical samples with PPD (Link & Stueya, 1994; Nestor, 2002).

It is reported that the association between PPD and suicide and suicide attempts remains unclear due to limited available data. However, PPD comorbid with other personality disorders (e.g., BPD) is associated with elevated suicide (Pompili et al., 2005). That study also found that individuals with PPD had higher rates of suicide attempts and self-harm behaviours than the control group, but lower rates of suicide and self-harm compared to BPD and BPD+PPD group, concluding that having comorbid BPD does increase the risk of suicide in individuals with PPD. Patients with PPD are prone to depression despite receiving psychiatric treatment (Karterud et al., 2003). PPD was found to be associated with anxiety associated with panic disorder in a community sample. Individuals were

found to have an earlier age of onset, longer duration anxiety, and more psychopathology (Reich & Braginsky, 1994). Carroll (2009) indicated that individuals with PPD may present with anxiety complaints initially, followed by paranoid core features which will be revealed over time. Although there may be an overlap with anxiety such as social phobia and social anxiety, the crucial distinction is the "perception of planned harm to self … not merely a preoccupation with negative events in the future or with exposure to public scrutiny".

5.3 Comorbidities of ASPD and PPD

An estimated 75% of individuals with PPD have a comorbid personality disorder (Lee, 2017). As shown in the systematic review (Chapter 2), an estimated of 10-69% of cases had a comorbid personality disorder of ASPD + PPD (Coid &Ullrich, 2010; Warren et al., 2002; Semiz et al., 2008) in offender population; 4-63% in clinical population (Oguz et al., 2014); and 6-23% in general population. In forensic samples, the comorbidity of ASPD and PPD (in addition to Cluster A PDs; 30%) was reported to be the second most common cluster among male offenders in maximum secure hospitals and special units in prison, after ASPD and narcissistic personality disorder (45%) (Blackburn & Coid, 1999). It has also been reported that substance misuse and panic disorder are also frequently comorbid with PPD. (Lee, 2017).

Despite the fact that ASPD is commonly comorbid with PPD, currently there is limited research exploring the underlying mechanism and the association

between this comorbidity group. This further highlights the importance of recognising the comorbidity of ASPD and PPD in the forensic population, in addition to other personality disorder comorbidity (e.g., BPD comorbid with ASPD).

Grandiose traits were found to be associated with substance abuse and comorbidity with ASPD and PPD (Russ et al., 2008). Of all the personality disorders described in the current diagnostic classification systems, only four personality disorders (ASPD, BPD, NPD and PPD) referred to anger features. Carroll (2009) highlighted that it can be challenging to differentiate ASPD and PPD from genuinely paranoid thinking in relation to the malevolent intent of the victims.

5.4 Assessment of personality disorders

As illustrated in Chapter 4, personality disorders are assessed using the most widely established diagnostic systems of classification, namely the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Diseases (ICD). The DSM-IV, Structured Clinician Interview for DSM-IV Axis II Personality Disorders (SCID-II), is considered the gold standard semi-structured assessment instrument for personality disorders (First & Gibbon, 2004). The Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV) is also frequently used.

For DSM-5, the level of personality functioning can be assessed by the Level of Personality Functioning Scale (LPFS; Morey, 2017), which requires rating the four domains of identity, self-direction (self-functioning), empathy and intimacy (interpersonal functioning) on a scale ranging from 0 (no impairment) to 4 (highest level of impairment) and using self-reported questionnaires. Within each domain, a comprehensive description is given to each criterion (Morey, 2013; Thylstrup et al., 2016). The personality disorder traits (Criterion B) can be assessed by the Personality Inventory for DSM-5 (PID-5; Krueger et al., 2012), which is a 220-item self-reported inventory designed to assess the personality traits. The measure renders 25 facets within five interpretable domain-level factors: negative affectivity, detachment, antagonism, disinhibition, and psychoticism (Bach et al., 2018). Personality traits and psychopathology can be screened using manuals such as Minnesota Multiphasic Personality Inventory–2 (MMPI-2), The Millon Clinical Multiaxial Inventory–IV (MCMI; Millon, 2006, 2009, 2015), and Personality Assessment Inventory (PAI; Morey, 1991,2004, 2007 (Wise, Streiner, & Walfish, 2010).

ICD-11 can be assessed by the Standardised Assessment of Severity of Personality Disorder, which determines the three levels of severity, ranging from Mild Personality Disorder, to Moderate Personality Disorder, to Severe Personality Disorder. ICD-11 also offers an option of specifying one or more prominent trait domain qualifiers (Negative Affectivity, Detachment, Disinhibition, Dissocialise, and Anankastia) as illustrated in Figure 4.4. Trait

domains can be assessed by the Personality Inventory for ICD-11 (PiCD; Oltmanns & Widiger, 2018, 2019).

Psychopathy is a distinct disorder which is not classified as a mental disorder according to the DSM-V criteria, but is assessed through a range of clinical and self-reported diagnostic tools. The Psychopathy Checklist Revised (PCL-R; Hare, 1991) is considered as the gold standard of assessment psychopathy. Psychopathy Checklist: Screening Version (PCL:SV) is used for screening purposes (Hart et al., 1995). It is empirically predictive of criminal behaviour, treatment outcomes, and a lack of conscience (Larsen et al., 2020).

5.5 Treatment approaches to working with personality disorder comorbidities

5.5.1 Treatment for personality disorders

Personality disorders present many challenges to treatment, as the entrenched personality dysfunction is deeply ingrained in individuals' thinking and behaviours. Treatment has been shown to lower individuals' risk of recidivism to some extent. Medication such as mood stabilisers, or antipsychotics, may help to relieve symptoms or reduce the clinical severity of ASPD. As the prevalence of ASPD is much higher in the forensic and clinical populations, treatments are typically designed to treat individuals with comorbid psychiatric diagnoses or target a specific behavioural intervention.

A meta-analysis investigated the psychological treatments for people who have offended with personality disorders in forensic settings, and reported that psychological treatments, partially multimodal treatments delivered to violent offenders, significantly reduced violence and general recidivism. However, violence and general/nonviolent institutional misconduct did not attain any significant treatment effects. The study concluded that the impact of psychological treatments is largely positive, but suggested that treatments using different modality models are associated with strongest treatment effects (Papilia et al., 2019).

A systematic review also provided tentative support for psychotherapeutic interventions in reducing aggressive behaviours in forensic and psychiatric patients (Ross et al., 2013). However, a small effect size was found in reducing recidivism in a meta-analysis study which investigated the effectiveness of mandated, coerced, and voluntary correctional treatment in forensic settings. It was found that mandated treatment was ineffective in custodial settings, whereas voluntary treatment was shown to be effective regardless of settings (Parhar et al., 2008).

CBT incorporates a range of techniques such as cognitive reconstruction, behavioural modification, psychoeducation, and skills training. CBT also highlights a collaborative and therapeutic relationship, making it effective to address the pervasive and persistent issues associated with personality disorders. Regarding specific personality disorders, a meta-analysis showed

that CBT, mental health, and substance misuse treatments were effective in reducing recidivism for individuals diagnosed with ASPD (Wilson et al., 2014). The authors reported individual CBT resulted in a greater effect than psychodynamic psychotherapy, and other psychological therapies, suggesting the efficacy of CBT is very high and can be delivered effectively using different delivery formats (individual, group, or self-help). However, it has been reported that the evidence base for CBT in personality disorders is only limited to a small number of uncontrolled studies (Matusiewicz et al., 2010). Evidenced programmes such as cognitive-behavioural therapy and contingency management are typically used for offenders with ASPD. However, the efficacy of interventions remains debateable (Choy, 2020).

There are no psychopharmacological treatments for PPD, although short-term antipsychotics were associated with improved clinical outcomes (Birkeland, 2013). Cognitive analytic therapy was shown to be effective in people with PPD (Kellett & Hardy, 2014), and narrative reformulation was shown to help the individual to achieve insight into their paranoia. However, more evidence base is required, and the authors called for the need for a cognitive component to be included in psychotherapy for PPD, as this helped to reflect upon the paranoid enactments and ruptures within the therapeutic relationships.

To date, there are no established treatment recommendations for PPD; again, CBT was shown to be effective in reducing delusion and

hallucinations. However, CBT was found to be less effective for individuals who experienced distress in relation to their paranoid experiences or those who had limited capacity to reflect upon their mental states - metacognition (Semerari et al., 2003). The CBT model was also being criticised for having minimal impact on patients with cognitive deficits or with poor insight into their illness (Wong, 2020). Treatment that targets specific core beliefs and interpersonal schemas that guide individuals' behaviours were found to be useful (Bamelis et al., 2014).

Additionally, there is growing evidence in respect of other therapeutic models such as Mentalisation-based Therapy (MBT; Bateman et al., 2018), Dialectical Behaviour Therapy (DBT; Berzins & Trestman, 2004; Linehan et al., 2006), and Schema Therapy (Bernstein et al., 2021; Jacob & Arntz, 2013) for personality disorders. MBT is a specialised therapy developed to address deficits in the capacity to represent and regulate mental states. However, a vast majority of evidence in treatment is only relevant to people with BPD. Furthermore, a systematic review was conducted to evaluate the efficacy and effectiveness of MBT for personality disorders. Results showed that MBT had potential to improve clinical outcomes, particularly in people diagnosed with BPD. However, the authors also noted the methodological challenges which may have impacted on the statistical power of the findings. Therefore, evidence base on PPD and ASPD is yet to be established in up-to-date literature review (Bateman et al., 2018; Vogt & Norman, 2019).

DBT incorporates change strategies from cognitive and behavioural therapies with acceptance strategies, with a modular and hierarchical structure. It is specifically developed to treat BPD, although it has also been applied to other Cluster B personality disorders and psychiatric disorders. (Linehan & Wilks, 2015) DBT features the development of skills including mindfulness, interpersonal effectiveness, emotion regulation, and distress tolerance. The efficacy of DBT has been demonstrated in controlled trials. However, it appears the evidence base is only demonstrated when treating individuals with a diagnosis of BPD (e.g., Bloom et al., 2012; Buono et al., 2021) but inconsistent evidence of other personality disorders. A systematic review study showed the criticism against the efficacy of DBT in the longer term (Gillespie et al., 2022).

Schema Therapy was specifically developed for treating personality disorder, and other complex, chronic clinical presentations. Schema Therapy is considered an advancement of CBT, it has also been shown to be the most efficacious and cost-effective treatment in personality disorders, particularly BPD. (e.g., Farrell et al., 2009; van Vreeswjjket al., 2012; Masley et al., 2012).

Schema Therapy was shown to demonstrate efficacy in reducing violence and aggression in the forensic populations, compared to the long-established CBT-intervention. Studies have shown that people with personality disorders are likely to develop maladaptive schemas (core

beliefs in self, others and the world), and are less likely to develop a positive self-image to accurately interpret others' intentions and to problem-solve. These maladaptive schemas were developed at an early age and are associated with individuals' childhood attachment style following exposure to parenting styles and early life events (e.g., trauma) and individual temperament (Young et al., 2003; Beck, Freeman, & David, 2004). A shorter version of the schema CBT approach has been developed by van Vreeswjjket and Broersen (2006, 2013), it is more structured and focuses more on the original schema model whereas schema therapy focuses more on schema modes (Farrell et al., 2014).

Schema informed CBT aims to help improve functioning and begin to develop a healthy adult state. Schema techniques are being incorporated into CBT, using a cognitive and behavioural framework. Up to the time of writing, Schema Therapy for people who commit violent offences and have been diagnosed with personality disorder seems most promising, as evidenced in one randomised clinical trial (Bernstein et al., 2023 a). Results demonstrated treatability of violent offenders with personality disorders, and the effectiveness of long-term therapeutic effect was established. (Bernstein et al., 2023 b). Bernstein et al., (2022) also indicated that Schema Therapy can be adapted for forensic populations, and can also be used to target externalising behaviours and emerging personality disorders.

At present, there is limited literature review investigating the treatment approaches for individuals with comorbid ASPD and PPD. However, this may be because most of the aforementioned approaches are transdiagnostic and can be applied in clinical and forensic settings.

5.6 Introducing the case study

5.6.1 Background

Client A was a 50-year-old man admitted to a medium secure ward. He was transferred from prison to hospital under section 48/49 (second admission).

Childhood history

Client A lived with his biological parents when he was born. He reported being violently beaten by his father, and his mother assisted the beating by holding him down. He described his father as a "troubled man" and that "his father treated his mother badly". He recalled his childhood as "being dishonest" as his mother would bring him to the shop and ask him to lie to the shopkeeper about getting his grocery shopping "on credit". He said he was in constant fear as a child; he knew what he did was morally wrong, but had no choice because his father would hit his mother if they didn't bring any food home. Client A's mother fled from domestic violence and brought him and his siblings to live in another city. He said he moved to sheltered housing which was like living in "a slum". Client A and his sister

were then taken into social care for a year because they were neglected at home. At the age of 10, Client A's mother married his stepfather. He said his mother and stepfather both started drinking heavily and his family was under financial stress. Client A described his stepfather as a "bully", although he denied being physically abused by him. He stated he was forced to watch his sister crying in distress. He reported that his stepfather forced him to throw away his toys because his stepfather wanted him to achieve academically. He also reported his mother and stepfather having sex together in ear shot of them both. He was worried that his stepfather might have raped his mother.

Education

When Client A moved to secondary school, he was physically bullied from about the age of 14. This led to him not attending school for over a year. He did not achieve any school qualifications. He left school at the age of 16 and started working in a local printing company where he worked for approximately two years. However, he was dismissed due to turning up to work intoxicated.

Relationships and sexual history

Client A identified himself as "heterosexual" and reported having short-term relationships in the past. However, he had been in a homosexual relationship over several years with an older male who allegedly exploited

and abused him physically and sexually when he became homeless following his release from a young offender institution.

In his 30s, Client A was in a relationship with a long-term female partner who suffered from a mental disorder and was also known to the forensic service. Their relationship was tumultuous and volatile until Client A reached mid-40s. In recent years, their relationship became more stable, although it was noted that Client A's partner supported him financially throughout the time when he was in prison and in secure hospitals. Whilst being detained in institutions, Client A repeatedly harassed his ex-partner in a threatening manner and demanded compensation from him. Client A believed that he was owed a large sum of money because he was lured into providing sex to him.

Substance misuse

Client A started drinking from the age of 14. On an average day, he would drink more than ten cans of strong lager. He would often start drinking in the mornings. He would have withdrawal-related shakes, would be sick and hallucinate if he was not drinking. Client A also started abusing cannabis at the age of 14. He abused crack cocaine, LSD, ecstasy, amphetamines and heroin, spending £30-£40/day on drugs. Client A did not use drugs while he was in prison but became dependent on pain killers.

Client A acknowledged that he was using heroin at the time of the index offence, both smoking and injecting. He did not feel that he was addicted to heroin, but said he was using this to self-medicate as it helped him with physical pain. Whilst in secure units, Client A was observed to have drug-seeking behaviour, asking for opiate analgesics for his "gastric pain".

Mental Health

He previously received a diagnosis of drug-induced psychosis. He was also assessed for delusional disorder, as he repeatedly accused clinical professionals of depriving him of medication for his severe gastric pain caused by "pancreatic cancer". He was reported to become "very paranoid". Following a two-year period of assessment, Client A was diagnosed with ASPD (primary diagnosis), PPD, alcohol-dependent syndrome and poly-substance misuse (abstinent in protective environments). Client A reported hearing voices of a derogatory nature, occasionally from people from his past whom he perceived to mean him harm. His clinical team also considered his presentation was suggestive of somatoform disorder due to persistent complaints of pain and associated severe stress.

Forensic History

Client A had a variety of previous convictions including actual bodily harm, criminal damage, arson, and possession of ammunition without a certificate, possession of an imitation firearm with intent to cause fear, aggravated vehicle taking, robbery and theft from a vehicle. He received a

total number of 25 convictions for 37 offences. Client A was previously arrested following an allegation of rape of a male (aged 16 years old or over) but the case was dropped. Prior to his index offence, Client A was serving a community rehabilitation order which involved supervision sessions and an offence-related programme, following his release from prison. He had a history of being recalled back to prison for contravening alcohol and drug conditions and deterioration in his mental health.

Index Offence

Client A was found guilty of two offences, one of causing grievous bodily harm and the second being armed robbery. The victim suffered from significant injuries and lost his sight as a result of the assault. Client A was sentenced to indefinite detention for public protection (IPP), with a tariff expiry date.

Referral and presentation on the ward

Whilst in prison, Client A was admitted to the healthcare wing. He was preoccupied with the threats to him both inside and outside the prison, stating a well-known criminal gang was targeting him and wanting to kill him. He was agitated and insistent about the risk to him. He was reportedly violent to prison officers and other inmates. Since his admission in the forensic hospital, Client A became more settled in his mental health. However, he was financially exploiting multiple service users on the ward, which resulted in him transferring from one ward to another ward. To

prevent being detected by staff, Client A started discreetly trading his belongings/food and charging other service users' interest on the ward. When confronted, he became very irritable and defensive, stating that "I'm not claiming any money, I'm just helping." He lodged multiple complaints about staff, which he later withdrew.

On occasions, Client A tested positive in drug screenings. He stated that he was deliberately sabotaged by other service users whom he believed tampered with his urine samples. He reported increasingly paranoid thoughts and behaviours, i.e., suspicious of food and his drinks being "spiked" and his genitals being touched by fellow patients at night. Client A also presented as aggressive or aggrieved when his needs were not met and when boundaries were reinforced to him. He frequently complained that the rules had been inconsistently implemented. Usually, these conflicts started due to disagreements about leave planning and meal catering times. He often viewed staff as bullying and intimidating towards him and perceived himself as being victimised. For instance, he accused staff of wilfully damaging his electronic devices and demanded compensation. He felt strongly that he had to stand his ground with staff, by engaging in physical and verbal violence. However, he demonstrated signs of being motivated to resolve conflicts with others without using violence. He was ambivalent about his alcohol use, saying he would like to fit in with "normal people" by having an occasional drink. On the other hand, he also thought it would be worth not drinking at all.

Client A's main interest was playing video games, which he spent a lot of his time doing, and commented that it was a good distraction in coping with stress. He also used his computer devices for computer gaming and online shopping and would spend a fair amount of money on buying clothes and electronic devices. He also attended IT and plumbing courses.

Ethics

Client A provided informed consent for publication of information about him in the author's doctorate thesis within University of Nottingham.

5.6.2 Assessment

The aims of the assessment were to have a formal evaluation of Client A's personality pathology, and to explore what Client A's maladaptive schemas were. During Client A's admission, several professionals queried whether underlying personality pathology may explain presenting challenging behaviours which exist, despite his mental illness and substance misuse problems being adequately treated for many years. Such behaviours had been the predominant cause of his lengthy admission. Across his admission, Client A participated in several different personality assessments, although he did not think that he had a personality disorder and believed that such a diagnosis was stigmatising. The assessment process involved corroborating information gathered from past assessments as well as conducting reassessment using the criteria of formalised diagnostic tools, namely the DSM-5 and ICD-10.

Previous reports showed that Client A's antisocial traits were elevated across all psychometrics which were conducted in the Personality Assessment Inventory (PAI, Morey, 2004), Millon Clinical Multiaxial Inventory (MCMI-III & MCMI-IV, Millon, 2006; 2009; 2015). The PAI and MCMI-IV also consistently highlighted that Client A most likely presented with antisocial and paranoid personality traits, with the possible presence of avoidant, dependent and negativistic tendencies. This provided further support for previous professionals' clinical opinions that he presented with antisocial and paranoid personality difficulties.

Client A's responses on the antisocial scale within the MCMI-IV indicated the possible presence of antisocial personality disorder. Individuals who score highly on this scale have been found to be impulsive, have the propensity to act aggressively and present with a lack of empathy or remorse. They appear to find it difficult to acknowledge the consequences of their actions and can use illegal activity to exploit others for their own self-gain. They can also present as suspicious and mistrustful of others. Client A's results on this scale were consistent with professionals' impressions of him, and the presence of antisocial personality disorder had been considered throughout his current hospital admission. Client A's antisocial history was relevant to his score on this scale. In addition, Client A had often been found to be impulsive in terms of his spending and abusing substances. He had presented as suspicious and could be perceived as

threatening to others. He identified that in certain environments and around certain people he can be more likely to engage in antisocial behaviour. However, it appeared that, in his current environment, namely medium security, Client A had shown some ability to manage such difficulties and he had been able to interact positively with peers, adhere to the rules of the ward and manage aspects of his impulsive behaviours.

Furthermore, on comparing behaviours to the diagnostic criteria, it was apparent that Client A fulfilled many of the criteria needed to make a diagnosis of personality disorder. In line with the diagnostic criteria for ASPD within the DSM-5, indicating evidence of conduct disorder before the age of 15 should be present, the conduct disorder aspect of the Structured Clinical Interview for DSM Axis II Disorders (SCID-II) was also administered. Client A admitted that he engaged in physical aggression towards bullies within a school environment and, on occasion, this did lead to him being suspended from school. A broader range of behaviours required to fulfil the criteria of conduct disorder, and subsequently diagnose ASPD, also appeared to be present.

Conversely, ICD-10 does not require conduct disorder to make a diagnosis of dissocial personality disorder. Client A partially met the criteria in that he fulfilled four required criteria of Dissocial Personality Disorder. However, what was less clear was whether he fulfilled the criteria required more generally for a personality disorder, according to the ICD-10. More

generally, this also relates to guidance which requires behaviour to be problematic, persistent, and pervasive to be classified as a personality disorder. It was clear that Client A presented with problems that have negative consequences for himself and others. There was also evidence of the traits being persistent and pervasive. However, Client A maintained that he had periods of his life (approximately two years), up until his early twenties, when he was not involved with breaking the law. Additionally, Client A's offending behaviour had included both aggression and anti-social acts. The latter appeared to be predominantly functional during times when Client A did not have sufficient finances to support his basic needs.

Whilst previous aggression was noted to occur in the context of Client A feeling paranoid about others and/or under the influence of substance(s), Client A was prone to become physically violent in response to retaliating to threats, both actual and perceived threats. It was observed that historically his antisocial behaviours were for defensive purposes when feeling threatened. It was possible that the anti-social environment (such as being surrounded with people who abused drugs, being in prisons and secure hospitals) had led to more frequent occurrences of such events. Although more information is required, Client A had been able to hold down a job and been involved in a long-term relationship. Whilst some difficulties were noted with being terminated from employment, Client A indicated that this was because he was late to work on a number of occasions following using alcohol, rather than acts which may concern deceptiveness or

manipulation. However, Client A did have a tendency to engage in behaviours which appeared to lack consideration of others.

On reviewing the psychopathy assessment, namely Hare Psychopathy Checklist: Screening Version (PCL:SV), which was previously completed in prison. PCL:SV (Cut-off score of ≥18) is a validated measure designed to supplement and extend the use of the PCL-R (Cut off score of 25) in screening psychopathic traits (Cooke et al., 1999). Client A obtained a PCL:SV score of 20 and noted to be suggestive of psychopathy. Features identified included superficiality, grandiosity, deceitfulness, lack of remorse, lack of empathy, lack of ability to accept responsibility, poor behavioural control and anti-social behaviour.

Additionally, a diagnosis of PPD was made using the Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD, First et al., 2016). Client A also met the criteria of PPD, which was considered secondary to the diagnosis of ASPD.

Psychometric Assessment

Client A completed a battery of psychometric assessments. With the focus on Client A's case study being on violence and mental health outcomes, only psychometrics assessing these outcomes were used, as illustrated below.

The Historic-Clinical-Risk management scheme-20 (HCR-20, v3; Webster et al., 1997) is dispersed across three scales: Historical (10 risk factors), Clinical (5 risk factors), and Risk management (5 risk factors). The rater scored each item as absent (score of 0), possibly/partially present (score of 1), or definitely present (score of 2). These obtained moderate AUC values for violent recidivism and acquisitive reconviction in male offenders are .67 and .69, respectively (Coid et al., 2009). The inter-rater reliability of HCR-20 is satisfactory to good, with total risk score ICC=0.83 (Douglas et al., 2017).

The Overt Aggression Scale-Modified (OAS-M; Coccaro et al., 1991) is a four-part behaviour rating scale rated by a clinician in psychiatric settings. It required the rater to check the highest applicable rating point to describe the most serious act of aggression committed by the client during the specified time period. Summed scores provide a measure of verbal aggression, aggression against objects, aggression against self, and aggression against others, and evaluate the frequency and severity of aggression. In terms of internal consistency, the Alpha coefficients for OAS-M sub-scores are 0.71 for verbal-aggression, 0.52 for aggression against objects, 0.45 for aggression against self and 0.39 for aggression against others. The kappa coefficient for determining aggression for two raters is 0.84. The ICC value for number of impulsive aggression is 0.97 (Coccaro, 2020).

The Reactive–Proactive Aggression Questionnaire (RPQ; Rain et al., 2006) is a self-report measure that distinguishes between reactive and proactive aggression. It was originally developed for use with youths and young adults. The questionnaire was adapted to use in forensic settings. For instance, the administrator asks the patient if he has taken things "from other patients" instead of "students". Each item is rated on a 3-point ordinal scale (0=Never, 1=Sometimes, and 2= Often). Summed scores provide a measure of reactive and proactive aggression as well as total aggression. The item-total correlations are ranged between 0.45 and 0.58 for the reactive scale, and 0.41 and 0.57 for the proactive scale. The Cronbach's alpha values are 0.84 for the reactive scale and 0.86 for the proactive scale (Rain et al., 2006). RPQ has been validated in the forensic and non-forensic populations (Brugman et al., 2017).

The Symptom Checklist-90 Revised (SCL-90-R; Derogatits, 1994) is used to assess the general symptomatology. A Global Severity Index (GSI) scale and nine scales of the most common psychopathological symptoms (e.g., anxiety, depression, paranoid ideations, etc) are included. Research suggested that the SCL-90-R is a reliable and valid inventory, and its internal consistency ranged from .77 to .90 for the subscales.

The Beck Anxiety Inventory (BAI; Beck & Steer, 1990) is used to assess the self-reported behavioural, cognitive, and physiological symptoms of

anxiety. These symptoms are scored on a Likert scale, ranged from 0 to 3. The summed scores provide a measure of the severity of anxiety, ranging from minimal anxiety to severe anxiety. The average reliability coefficient and test–retest reliability of the BAI are 0.92 and 0.75, respectively. Client A's score indicated severe levels of symptoms of anxiety. Client A disclosed that he used to use alcohol to manage his anxiety when interacting with others.

The Beck Depression Inventory (BDI; Beck et al., 1961) is used to assessed self-reported current mood and depressive symptoms. Client A historically had expressed concerns regarding low mood and depression. The symptoms were scored on a Likert scale, ranged from 0 to 3. The summed scores provided a measure of the severity of depression, ranging from mild depression to severe depression. The reliability coefficient and internal consistency of the BDI are 0.93 and 0.85 (range 0.73–0.92). Client A indicated that he was experiencing moderate levels of symptoms of depression.

Young Schema Questionnaire-Short Version (YSQ-SV; Young & Brown, 2005) was used to identify Client A's schema which usually developed in childhood and adolescence. Schema were defined as broad, pervasive, themes regarding oneself and their relationship with others. YSQ-SV was widely studied and validated within the clinical and non-clinical populations in international studies. Client A endorsed several early maladaptive

schemas, namely, emotional deprivation, emotional inhibition, entitlement, insufficient self-control, approval seeking, punitive, and mistrust/abusive.

5.6.3 Formulation

The second phase, after completing initial assessment, was to complete a formulation in collaboration with Client A. A 5P formulation was used to conceptualise Client A's problems, systematically and holistically taking into consideration: 1) the presenting problem; 2) predisposing factors; 3) precipitating factors; 4) perpetuating factors; and 5) protective factors (Weerasekera, 1993). The 5P formulation promotes a clear approach to case formulation which provides meaningful data. The formulation is a working hypothesis about the origins and maintenance of Client A's difficulties based on the analysis of available information (Johnstone & Dallos, 2006). This also provide opportunities for a variety of interventions and strategies, perhaps using an integrated psychological approach to target Client A's criminogenic needs.

Presenting:

Client A presented with a history of violence, antisocial behaviour and drug use from an early age. He also frequently experienced intense anger outbursts which resulted in verbal and physical forms of aggression. Client A's violence had been directed against both strangers and family members. His violence involved the use of objects which were used as weapons, leading him to become involved in the criminal justice system.

Predisposing:

Client A experienced emotional, physical and sexual abuse from parents and others during childhood and adolescence, which may have caused difficulty in his normative development and acted as predisposing factors to the later development of mental health difficulties and violent behaviour. He had limited opportunity for contact with pro-social role models. Client A reported fractured relationships with his significant caregivers and incidences of bullying, dishonesty, criticism and humiliation from his parents and stepfather throughout childhood. He witnessed domestic violence before his parents separated. He acknowledged that he worried about his mother and how she was coping, but felt abandoned when his mother sided with his stepfather. He experienced a lack of warm, secure and loving early relationships, particularly during the period when his caregivers' drinking problems became increasingly problematic. Client A engaged in substance use and antisocial behaviour during his childhood and adolescence. Client A also struggled with his mental health and experienced symptoms such as depression, anxiety and demonstrated poor insight into emotions.

Client A's early experiences are likely to have impacted on his sense of security and ability to emotionally self-regulate. It is possible Client A may have come to see the world and its inhabitants as unpredictable and has hence developed a repertoire of defences, which serve to protect him from

further internal damage and confusion. These may include an avoidance of affect, anti-social expressions and significant substance misuse. This might have also negatively impacted on his ability to develop healthy relationships. The experience of consistent threat may have impacted his developmental trajectories and subsequent mental health. Further predisposing factors include Client A's use of illicit substances, which dates back to adolescence, and the possibility of neurodevelopmental difficulties in the form of below-average intellectual abilities.

Precipitating:

Client A's risk of future violence may be related to his use of substances, personality structure and mental state. His aggression is likely to escalate when he feels disrespected, or has experienced a high amount of stress, particularly stress arising from finances and from interpersonal relationships. He is likely to hold increased paranoid thoughts about staff and peers when experiencing any angry episodes and conflictual interactions with others.

Perpetuating:

There are several factors which are likely to maintain Client A's risk of violent behaviour. Client A has a significant history of supervision challenges and substance misuse, and he also described his fear and mistrust towards the intentions of others in authority, particularly from probation and substance misuse services. Client A may be more susceptible

to violent behaviour when using substances or facing situations that increase his stress levels. He was also particularly sensitive to any criticisms. In these situations, he usually had a lower inhibitory threshold for violence. Client A's paranoid thinking was also associated with his self-defeating negative cognition and resistance to change. However, his paranoid personality traits appeared to be associated with negative assumptions. It is likely that he became hypersensitive to, and had ruminated about, what he perceived as hostile, threatening or provocative behaviour from others.

Considering previous recalls and violent offending patterns, his risk factors seem to be largely linked with financial and relationship instability, lifestyle and associates, substance misuse and consequent episodes of paranoid ideations.

Protective:

Client A was accepting of the need for developing therapeutic relationships with staff and was willing to engage in psychological treatment. Client A mentioned that he is in a "different place at the moment", mentioning that he would like to take this opportunity to complete his treatment in the hospital. He had engaged in occupational activities in the past, which he felt were therapeutic. He had also practised self-care activities in attempts to meet his own needs.

5.6.4 Intervention

The intervention took place over the course of 28 weeks, and follow-up measures were conducted at week 28 and week 36. Client A attended 28 out of 30 individual sessions offered, which included one pre and one post-assessment session. Each session lasted between 45 minutes to an hour. The CBT and schema components were included to best target Client A's treatment needs and complex psychological problems. Given the objectives would better suit Client A's responsiveness to intervention, the integrated approach was chosen. The CBT-approach teaches practical strategies and problem-solving skills to alter individuals' thoughts, feelings and behaviours. The schema-informed approach helps to increase an individual's awareness and acceptance to own vulnerable feelings; increase their feelings of self-worth; develop a more trusting view of others; and verbalise their distress. It was felt that the integrated approach would benefit Client A since he is motivated to break negative thinking/behavioural patterns. It is also worth noting that, during the assessment and intervention period, he received no concurrent psychological or pharmacological treatment.

The following resources were used in the planning and development of treatment:

ASSIST is a multi-modal integrated therapy for personality disorder, developed and tailored for individuals presenting with a personality

disorder. The programme aims to increase insight, understanding and skills development for the effective management of challenges associated with personality traits as well as enhancement of more positive functioning. The modules included: starting therapy and recognising strengths; emotional regulation and distress tolerance skills; developing own understanding; cognitive and problem-solving skills; interpersonal skills and developing schemas, and applying skills and learning (Ireland, 2014; Ireland & Hansen, 2015)

Mood Masters is a CBT programme developed by the Association for Psychological Therapies (APT) at www.apt.ac. The aim of the programme was to improve clients' management of emotion and behaviours. Themes of the programmes included understanding emotion, setting goals, dealing with stressful situations, resolving conflict, and problem-solving. Clients are encouraged to reflect on the rate of their mood week by week. This structure is also considered as an opportunity to address clients' emotions and feelings, in order to develop the skills to manage their mental health symptoms. In Client A's case, this work is vital to pave the way for schema work.

Schema Therapy resources at www.psychologytools.com were used. Assessment resources such as YSQ and schema mode inventory and intervention handouts, such as exploring patterns of schemas, identifying different modes, empathic confrontation, limit setting and dealing with

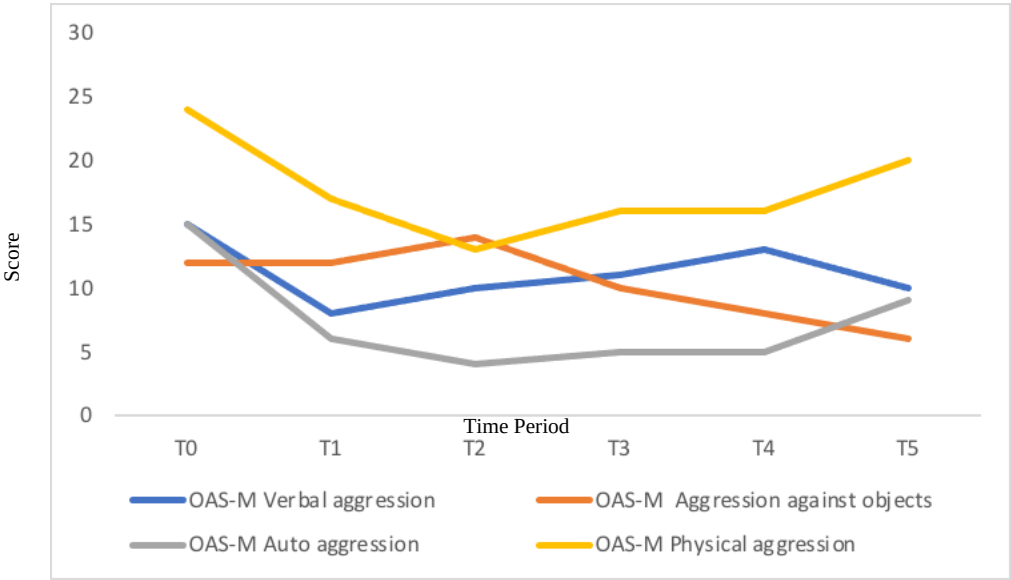
anger. A log-book for schema triggering and mode analysis, was provided for Client A. It is important to highlight that the development and structure of the intervention was closely supervised by a schema therapist. The sessions were delivered in a compassionate and non-judgemental manner to support Client A to gain insight into these behavioural patterns and enact changes (Young et al., 2003). The sessions also focused on Client A's problematic emotions, childhood difficulties, and the therapeutic relationship. For instance, Client A was supported to explore "child modes" associated with feeling, thinking and acting in a childlike manner, such as vulnerable child, angry child, impulsive child, lonely child. "Dysfunctional parent modes" such as self-directed criticism or demands, punitive critic, or demanding critic, were explored with Client A in order to support him to reflect on his internalised parent behaviour and emotional positions. "Dysfunctional coping modes" associated with avoidant, over-compensatory, or surrendering behaviours such as bully and attack, conning and manipulative, or paranoid over-controller, were further examined. The work also highlighted enhancing "Healthy Adult" mode (e.g., healthy, expression of self, self-reflection and feelings of pleasure and happiness), and the importance of developing self-identity and building relapse prevention techniques through role-play and guided imageries (Young et al., 2003).

5.6.5 Results

Outcome measures were completed with Client A during the baseline, post-intervention and follow-up periods, as presented in Table 5.1. Overall, there was an improvement in the majority of the identified outcomes, including violence towards others, verbal aggression and reactive aggression. However, there appeared to be no difference in proactive aggression (see Figure 5.1 & 5.2). The longer-term effect appeared to have diminished over time, although violence/aggression appeared to show improvement compared to the baseline period. Similarly, mental health outcomes, both anxiety and depression, had improved over time, although Client A reported moderate concerns with depression (see Figures 5.3 & 5.4). Client A also demonstrated symptoms in somatisation and paranoid ideation throughout the intervention and follow-up period.

Figure 5.1

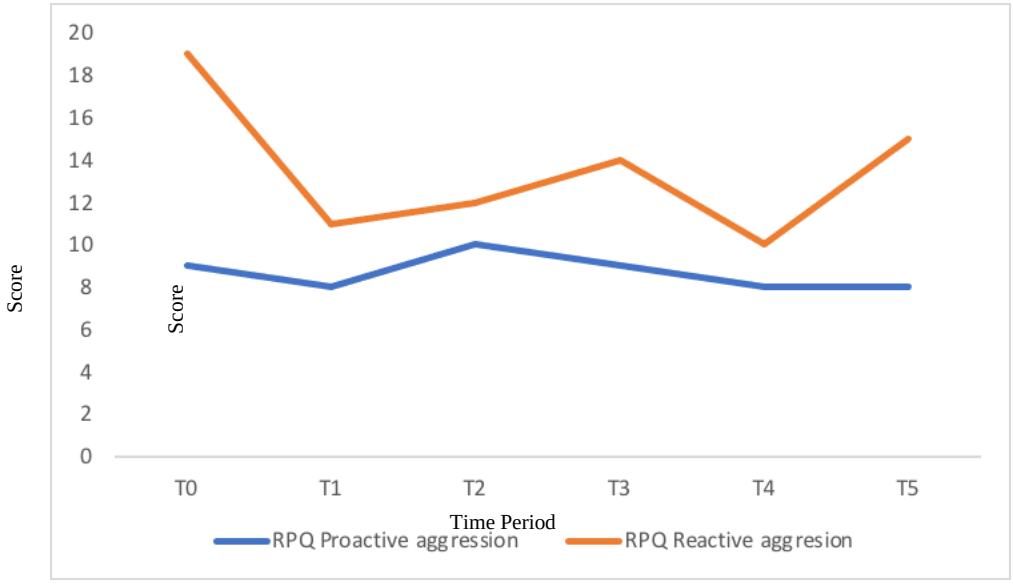
Changes in aggression at baseline, post-intervention and follow-up



Comparative results on overt aggression at baseline (pre-), 7-week, 14-week, 21-week, 28-week (post) and 34-week (follow-up)

Figure 5.2

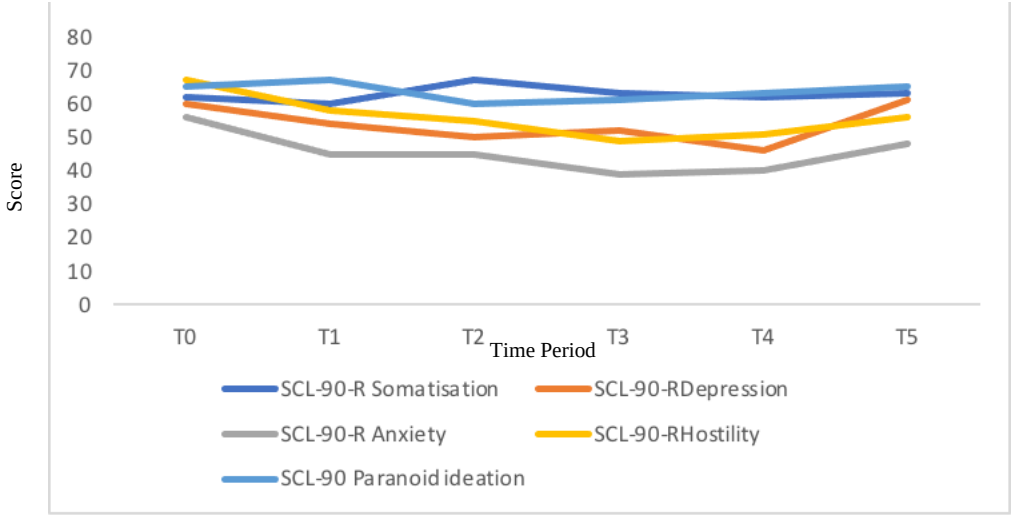
Changes in violence at baseline, post-intervention and follow-up



Comparative results on proactive and reactive aggression at baseline (pre-), 7-week, 14-week, 21-week, 28-week (post) and 34-week (follow-up)

Figure 5.3

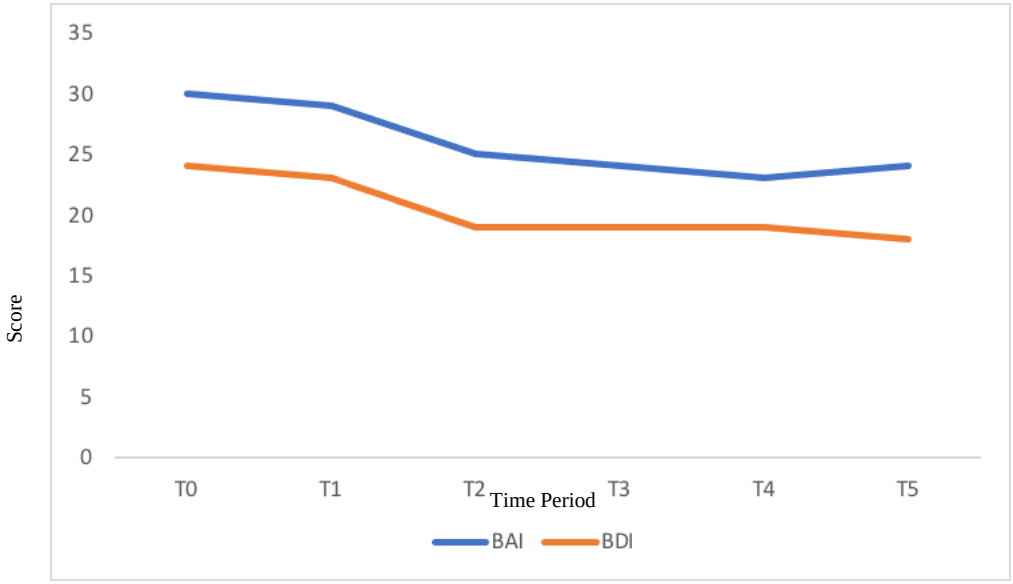
Changes in mental health outcomes at baseline, post-intervention and follow-up



Comparative results on mental health symptoms at baseline (pre-), 7-week, 14-week, 21-week, 28-week (post) and 34-week (follow-up)

Figure 5.4

Changes in anxiety and depression at baseline, post-intervention and follow-up



Comparison results on anxiety and depression at baseline (pre-), 7-week, 14-week, 21-week, 28-week (post) and 34-week (follow-up)

Table 5.1

Comparative pre and post-psychometric assessment

	T0 (Baseline)		T5 (Post-intervention)		T6 (8-week Follow-up)	
	Score	Interpretation	Score	Interpretation	Score	Interpretation
Psychometric/subscale						
HCR-20 total score (in-patient)	30	High risk	27	High risk	26	High risk
OAS-M						
Verbal aggression	15	High	13	High	10	High
Aggression against objects	12	High	8	High	6	Average
Auto aggression	15	High	5	Average	9	High
Physical aggression	24	High	16	High	20	High
RPQ						
Proactive	9	Above Average	8	Above Average	8	Above Average

Reactive	19	Above Average	10	Above Average	15	Above Average
SCL-90						
Global Severity Index	68	Above Average	62	Above Average	63	Above Average
Somatisation	62	Above Average	64	Above Average	61	Above Average
Interpersonal sensitivity	57	Above Average	42	Above Average	45	Below Average
Depression	60	Above Average	46	Below Average	57	Above Average
Anxiety	56	Above Average	40	Below Average	48	Below Average
Hostility	67	Above Average	51	Below Average	56	Above Average
Phobic anxiety	40	Below Average	41	Below Average	44	Below average
Paranoid ideation	65	Above Average	63	Above Average	65	Above Average
Psychoticism	45	Below Average	56	Above Average	47	Below Average
BAI	30	Severe	23	Moderate	24	Moderate
BDI	24	Moderate	19	Mild	18	Mild

5.7 Discussion

Overall, Client A's engagement and responsiveness to psychological intervention was positive and a significant reduction in violence and improvement in mental health outcomes was noted since completion. A case study has been presented for clinical practice to illustrate the schema-informed CBT modality, although it is difficult to reliably evaluate the treatment effectiveness for people who have committed violence offences. The findings have indicated that this may be an area that would benefit from further research and evaluation in clinical practice.

The use of personality assessment to structure the understanding of Client A's formulation has helped to inform the treatment needs and therapeutic approaches. However, it is noted that the case study does not directly measure the effectiveness of the intervention regarding violent reoffending, as recidivism requires a longer period of follow-up, and having access to reoffending data following hospital discharge. Studies have shown that individuals with ASPD and Other PDs comorbidity are deemed to present a higher risk of recidivism (Howard et al. 2013; Wilson, 2014). However, the intervention has addressed risk factors in relation to poor coping skills, mental health symptoms, unhealthy interpersonal relationships and supervision issues although whether the client's risk of violent reoffending has changed or not cannot be conclusively determined.

On the whole, analysis of Client A's case and a review of the literature revealed that personality disorders, particularly ASPD, frequently occur together. It is also possible for an individual to have an additional psychiatric disorder, namely substance misuse disorder, which is likely to contributed to behavioural disinhibition. It is not known which symptoms are more prone to exacerbating violence and mental health problems among people presenting with a comorbidity of ASPD and Other PD and substance misuse who have committed violent offences. Further studies may explore how to disentangle this nuanced comorbid personality disorders-substance misuse relationship as it may have implications in the improvements of violence and mental health outcomes. It is important to keep in mind that there are no established treatment recommendations for PPD and its efficacy in individuals with limited metacognitive functioning has been questioned (Semerari et al., 2003). However, this case study incorporated various aspects of therapeutic models grounded from the available research, and attempted to deliver an individualised therapy for an individual with personality disorders and a history of violence. Overall, it was felt that Client A progressed well, particularly in regard to supervision and compliance with his treatment plan. He expressed specific plans to continue engaging with his treatment and to engage with the substance misuse team and probation services. Trading behaviours and substance misuse incidents have reduced significantly throughout the intervention period. Although the longer-term effectiveness would need to be evaluated to establish the impact, it would be beneficial to replicate the intervention

with other patients with ASPD and personality disorder comorbidities, in order to obtain a larger representation of sample size. It is also recommended that randomised controlled trials should be piloted in forensic psychiatric patients presenting with comorbid personality disorders.

Chapter 6

Discussion

6.1 Introduction

This thesis aimed to investigate the comorbidity of Antisocial Personality Disorder (ASPD) and substance misuse (SU) with other personality disorders (Other PDs), and determine what patterns were most associated with violence and mental health outcomes. Current versions of the most widely used systems of classification, namely the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), includes a transdiagnostic dimensional appraisal for Personality Disorder (PD) traits. The International Classification of Diseases (ICD-11) has abandoned specific personality disorder categories and introduced five broad traits domains, providing a dimensional description of personality disorders based on the severity of personality dysfunction. This thesis highlights the ongoing challenges in transforming the diagnostic system of personality disorders within the DSM-5 (Herpertz et al., 2017), therefore although DSM-5 is the classification system that is used currently, DSM-IV performs better in the translation of research literature.

The purpose of this thesis was to expand the current knowledge base regarding the cumulative effect of meeting criteria for more than one personality disorder, specifically comorbidity with ASPD. This discussion chapter will provide summary and key findings of the literature review, systematic review, empirical primary research, methodological critique and case study. The implications for practice strengths and limitations, and recommendations for future research, will be discussed.

6.2 Literature review findings

6.2.1 Personality disorders and links to violence

Chapter 1 provided an overview of the evidence base for the association between ASPD and violence, ASPD and Other PDs with and without SU, and violence and mental health outcomes associated with these conditions and specific patterns of comorbidity.

The key findings showed that ASPD was also significantly associated with violence, especially among patients admitted to secure forensic psychiatry services. (e.g., Coid et al., 2006; Coid et al., 2008; Coid et al., 2017).

Specific personality disorders were also shown to be associated with violence. For example, borderline personality disorder was associated with intimate partner violence; self-injurious behaviour; property damage, and murder, such as familicide and serial killing (e.g., Sarkar, 2019; Sansone & Sansone, 2012). The association between BPD and violence appears to

be linked to comorbid SU, anxiety and ASPD, whereas anger and impulsivity, which are part of the borderline personality disorder criteria, were independently associated with severe, repetitive violence leading to injuries (González et al., 2016). It was suggested that ASPD contributed to an impulsive type of appetitively-motivated violence, whilst BPD contributed to an impulsive type of aversively-motivated violence (Howard, 2009).

Cluster B personality (i.e., narcissistic personality disorder) was also found to be associated with intimate partner violence, physical, verbal aggression in the context of reactive and proactive aggression. It is argued that narcissistic personality alone is not frequently associated with serious offending, but it is also possible for individuals with narcissistic personality disorder to commit severely violent offences disproportionately. (Coid et al., 2017; Kjærvik & Bushman, 2021).

Cluster A personality disorder (i.e., paranoid personality disorder) was found to be associated repetitive violence when intoxicated, reactive aggression and pre-emptive threats (Carroll, 2009; Coid et al., 2016; Coid et al., 2017). The personality feature of high rumination (e.g., paranoid ideation) contributes to provoked aggression. As a result individuals may have a low inhibitory threshold for violent retribution when feeling provoked, due to cognitive deficits, poor affect regulation and fragmented self-esteem and jealousy in relation to social status (Bettencourt et al., 2006).

Overall, there is established evidence that Cluster A and Cluster B personality disorders are associated with violence in the forensic populations. However, not all personality disorders are associated with violence. For example, Cluster C personality disorders have demonstrated contrary evidence (e.g., Howard, 2008; Roberts and Coid, 2010). In clinical practice, Cluster C personality disorders were very rare, although not non-existent among homicide offenders (1 in 21 homicide cases) (Laajasalo et al. 2013).

6.2.2 Comorbid personality disorders in general and forensic populations

It has been highlighted that most patients who come to the attention of clinical and criminal justice involvement have comorbid conditions. Among individuals who were diagnosed with personality disorders, those who had ASPD and BPD were more likely to commit violence and criminal offences than those who had Other PDs. (e.g., Blackburn & Coid, 1999; Zimmerman et al., 2005). It is of particular importance when assessing and managing the risk of violence in these individuals in clinical settings.

It has been established that the severity of personality pathology is linked to the likelihood of violence, although not all personality disorders are associated with violence. Violence is better explained by comorbidity as personality pathology appears to have distinct pathways to the manifestation of violence.

The prevalence of comorbidities in personality disorders in clinical and forensic samples was illustrated in Chapter 1. A phenomenon in the clinical populations has been established, depicting that ASPD comorbid with Cluster B personality disorders were relatively more common than in Cluster A and Cluster C disorders. However, in the forensic populations, ASPD comorbidity with Cluster A and Cluster B personality disorders were both equally common in people who have offended.

The prevalence of comorbidities in personality disorders and SU was also illustrated in Chapter 1. A phenomenon indicating the comorbidity of ASPD, BPD, and SU has been established (e.g., Black et al., 2016; Howard et al., 2021). The majority of studies also showed that ASPD was prevalent in SU abusers with BPD (e.g., Barral et al., 2006; Tikkanen et al., 2009). However, it is noted that only BPD was widely investigated in available studies and the likelihood of publication bias cannot be ruled out. Despite the prevalence of personality comorbidities, there is a gap in the literature illustrating how the severity of personality disorder pathology plays a role in the mechanism to the manifestation of violence.

All in all, the comorbid psychopathology could be substantially impacting the levels of violence in society, which is recognised as a worldwide problem. For example, its impact on the levels of victim injury and frequency of violence which have been confirmed by literature findings (Freestone et al., 2012; Schug et al., 2007).

It was hypothesised that ASPD comorbid with other PDs and SU are most associated with violence and mental health outcomes as a result of the cumulative and linear effect of personality pathology. Substance misuse is a major risk factor for violence. Comorbid substance misuse and ASPD have considerably increased such risk, eliciting a distinct effect in violent outcomes. Conduct disorder and ASPD are associated with severe problems and criminal justice involvement among patients with dual diagnoses. ASPD was shown to be strongly associated with extensive criminal justice involvement (i.e. violence charges and convictions), which indicated the pathology of a late-onset ASPD in severe mental illness secondary to SU. However, offending behaviour presented in patients with dual diagnoses was associated with an early onset of ASPD rather than SU (Mueset et al., 2006). It is also possible that a shared aetiology and predisposition have taken place during a transactional co-occurrence process.

The relationship between mental illness, substance misuse disorders, ASPD and offending was investigated among male patients. The results showed that patients with "triple diagnosis" had the highest rates of offending and offence severity, followed by patients with "dual diagnosis". Patients with co-occurring mental illness and substance use disorders, as well as those who had an additional diagnosis of ASPD, were responsible for more serious and frequent offending than those with mental illness alone (Ogloff et al., 2015). The findings oppose a dichotomous outcome of severe mental illness, substance misuse and crime. The same framework may explain why ASPD comorbid with other PDs may confer a substantial risk of violence.

In summary, the available literature demonstrates that the impact of cumulative diagnoses and comorbidity has not been explored comprehensively. It is worth noting that there is a scarcity of existing literature review accounting for the effect of comorbidity despite the prominence of personality comorbidities.

6.3 Systematic review summary and findings

Chapter 2 provided a systematic review which aimed to examine: 1) the prevalence of comorbidity of personality disorders in individuals with ASPD ± SU; and 2) the associations with violence and mental health outcomes (suicidality, self-harm, depression, and anxiety). To the author's knowledge, this is the first review that systematically investigated either of these questions. Previous studies suggested that ASPD and BPD are commonly comorbid, but this has not been established systematically.

6.3.1 The prevalence of comorbid personality disorders with ASPD ± SU

A high prevalence of ASPD and Cluster B personality disorder comorbidity, particularly BPD and narcissistic personality disorders, was established to be the most commonly researched comorbidity in the clinical and forensic populations. Consistent with the findings from the current literature, BPD was most prevalent in ASPD ± SU, but Cluster B PDs frequently co-occur with ASPD ± SU. Cluster A PDs also commonly co-occurred with ASPD ±

SU, although the comorbidity between Cluster C PDs with ASPD ± SU was least prevalent.

The current field of personality disorder has, to date, mainly excluded Cluster C PDs but focused significantly on BPD. Additionally, it has been a subject of criticism that Cluster C PDs are excluded from international guidelines for personality disorders (Hutsebaut et al., 2018). However, the exact prevalence of ASPD and other PDs + SU was not precisely clear due to limited available studies investigating all variables. The reported prevalence rates may be skewed highly against BPD/ Cluster B PDs due to the availability of data in existing research.

6.3.2 The association between personality disorders with ASPD and violence and mental health outcomes

The key findings showed individuals with ASPD + BPD were more likely to result in violence outcomes, in terms of number of violence convictions, violence and aggressive acts, reoffending and severity, as compared with individuals with ASPD and other PD. The findings further confirmed the specific patterns of cumulative personality disorder diagnoses are risk factors for violence.

In terms of mental health outcomes, studies that investigated suicidality and self-harm among individuals with ASPD + Other PD had only examined the associations between the comorbidity between ASPD, BPD or Cluster B.

The results were mixed although the evidence appeared to favour the association in suicidality but not self-harm. It has been difficult to establish the link because the evidence was contrary or inconclusive in both anxiety and depression. Given the statistical power was only limited to the paucity of available data, possibly due to methodological challenges such as clinical heterogeneity. The effect of personality comorbidities have on the severity of psychopathological characteristics and mental health outcomes remains unclear.

In terms of the patterns of comorbid substance misuse, the systematic review revealed that ASPD + BPD ± SU is associated with violent outcomes in forensic settings. In particular, evidence showed that ASPD + BPD ± SU comorbidity appears to be associated with a substantial severity of violence but the underlying mechanism was not clear. However, existing evidence suggests that the comorbid personality disorder pathology and substance misuse (ASPD + BPD ± SU) is the key to the association between personality disorder and violence. It is possible that personality pathology which involves the cumulative effect of meeting criteria for more than one personality disorder may act as a modifier of violent outcomes and/or treatment responses.

6.4 Empirical research summary and findings

Chapter 3 provided primary empirical research which aimed to investigate the impact of comorbid PDs with ASPD and SU on violence and mental

health outcomes in male forensic patients aged 18-65 years who were in receipt of psychiatric care in a secure hospital. The author investigated three main questions: 1) the prevalence of ASPD ± Other PD ± SU; 2) the association between the comorbidity of ASPD ± Other PD ± SU and violence; and 3) the association between the comorbidity of ASPD ± Other PD ± SU and mental health outcomes. The study tested the hypothesis that forensic patients who demonstrated personality comorbidities and substance misuse would show a significantly higher level of violence and more negative mental health outcomes, than patients without comorbidities.

The key findings showed the following:

- ASPD + Cluster B PD was the most prevalent in forensic patients (25%), compared to ASPD + Cluster A PD (2%) and ASPD + Cluster C PD (2%) in forensic patients.
- The comorbidity of ASPD + Other PD + SU was associated with severe violence
- The comorbidity of ASPD + Other PD + SU showed a significantly higher number of criminal offences than ASPD + Other PD – SU.
- Several types of offences/violence were not associated with ASPD ± Other PD ± SU
- Most negative mental health outcomes were not associated with ASPD ± Other PD ± SU, apart from depression.

The findings from primary research were largely consistent with the existing literature review. However, the findings regarding the types of offence/ violence was a surprising reveal. One possible explanation is that the offending trajectory of offences such as fire-setting, sexual offending, stalking, and child abuse is entirely different from violence. Nevertheless, the key findings concluded that ASPD co-morbid with other PDs appear to be linked to incidences of violence that are antisocial in nature (i.e., antisocial outcomes), rather than violence outcomes. SU appears to play a moderating role in the severity and frequency of violence. Violence may be better measured by the severity and frequency, rather than the versatility of offences.

Overall, the findings consistently suggested the possibility that severity of personality pathology and the cumulative effect of SU is linked to the likelihood of severe violence. However, such effect was not observed in mental health outcomes. It remained unclear whether cumulative effect of ±Other PD ± SU may act as a modifier of mental health outcomes. The mechanism may be dissimilar to violence, possibly due to the overlapping of clinical symptoms and complexity of clinical heterogeneity. Nevertheless, the results have important implications on treatment targets which address the risk associated with the severity of personality pathology and substance misuse.

6.5 Methodological critique summary and findings

Chapter 4 provided a methodological critique on the diagnostic systems of classification, namely the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Diseases (ICD). The critique aimed to evaluate how the assessment instruments and classification systems account for personality disorder comorbidities. The DSM (DSM-IV and DSM-5) and ICD (ICD-10 and ICD-11), both categorial and dimensional assessment methods of personality disorders, were evaluated. Although the diagnostic approaches in DSM-5 and ICD-11 have taken dissimilar approaches, both have highlighted the importance of clinical utility and diagnostic validity.

The key finding indicated that current diagnostic classification systems are over-simplistic and have failed to account of personality disorder comorbidities. The combinations of trait qualifiers or the categorical-dimensional assessment model, either together or alone, also did not account for the cumulative effect of meeting criteria for more than one personality disorder. A proposal to align the strengths of diagnostic systems of classification, namely the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Diseases (ICD) and psychopathy assessment, was strongly recommended.

It has been proposed that current classification systems and assessment methods could be enhanced by: 1) retaining the ten specific personality disorder and emotionally unstable personality disorder-borderline type

specifiers; 2) retaining explicit diagnostic criteria as part of the diagnostic threshold (e.g., conduct disorder account for the callous-unemotional traits in ASPD); 3) incorporating the dimensional-trait assessment; and 4) considering the construct of psychopathy assessment (e.g., PCL-R) as part of the assessment, but not necessarily as a specifier, including the levels of severity in personality functioning (Mild, Moderate, and Severe). The proposed classification systems may allow clinicians to employ multiple-dimensional assessment measures which are neither too over-simplified nor over-complicated, portraying a distinctive diagnostic profile of personality disorder with/without other personality disorder comorbidities. A collaborative development of ICD-11 with DSM-V that aligns the two classification systems more closely may be what the future holds. Removing the over-complication in classification systems and utilising an enhanced evidence-based model would provide greater value in clinical utility and validity.

6.6 Case study

A case study involving the psychological assessment and a case formulation of a male forensic psychiatric patient who committed a number of serious violent offences. The case analysed highlighted findings from literature review and personality assessments. The Schema -informed CBT was piloted to enable the development of schema techniques. Up to the time of writing, Schema Therapy for violent offenders diagnosed with personality

disorder seems most promising, as evidenced by a randomised clinical trial (Bernstein et al., 2023 a) and the effectiveness of long-term therapeutic effect (Bernstein et al., 2022).

A 28-week schema-informed cognitive behavioural therapy (CBT) was delivered as a pilot case study to evaluate the effectiveness of the intervention on violence and mental health outcomes. The findings revealed that Schema-informed CBT was effective in reducing verbal, physical and reactive forms of violence and improving anxiety and depression. The evaluation indicated a positive effect in reducing violence and improving mental health outcomes for individuals with comorbid personality disorders. Future evaluation to include randomised controlled trials of schema-informed CBT is recommended to be piloted in people with comorbid personality disorders who have committed violence offences. A longer-term evaluation would need to be evaluated to establish the effectiveness of the intervention. It would be beneficial to replicate the intervention to obtain a larger representation of sample size.

6.7 Prominent findings

These were the key themes that emerged but had not been established systematically by previous research. This thesis confirmed that: 1) there is a high prevalence of ASPD and Cluster B personality disorder (i.e. borderline personality disorder) in the clinical and forensic populations, which depicted the specific patterns of cumulative personality disorder diagnoses; 2) the comorbidity of ASPD ± Other PD (i.e. borderline

personality disorder) ± SU was consistently associated with violence (i.e. severity and frequency); and 3) evidence of broader mental health outcomes remained unclear or almost contrary. The findings were consistent with previous literature showing that several specific personality disorders are associated with violence. Some studies suggested that the levels of violence was further elevated by the comorbidity between personality disorders and SU in people diagnosed with ASPD. (Coid et al., 2017; González et al., 2016).

The findings from this thesis revealed that, in the absence of SU, violence persisted among individuals, but the degree of harm elicited appeared to be less severe compared to +SU. Additionally, in the absence of Other PDs, the associated risk of violence was not impacted, possibly due to the cumulative effect of PDs which appear to be linked to incidences of antisocial outcomes, rather than violence outcomes. As such, the specific patterns of personality comorbidities and SU account for the severity and frequency of violence rather than the versatility of offences.

To conclude, the prominent findings depicted that the specific patterns of cumulative personality disorder diagnoses, being the comorbidity of ASPD + Other PD + SU, are risk factors for violence. The personality pathology and the interaction with the effects of SU, appears to account for manifestations of violence. However, current diagnostic classification systems are over-simplistic and have failed to account for personality disorder comorbidities. This thesis also highlighted the complexity of

working with forensic samples with comorbidity of personality disorders and substance misuse and recommended narrowing the treatment target audience to this specific forensic patient group, being people with the comorbidity referred to above. The author also supports more specific assessment of personality disorder comorbidities in clinical practice. Clinicians may find it helpful to develop a comprehensive understanding of a patient's problems, particularly of possible underlying personality dimensions which may inform treatment responsivity. Finally, an innovative psychological approach which incorporates schema techniques into CBT work showed promising results in the case study. The robustness of the assessment may enhance the efficacy of treatment and thus improve violence and other clinical outcomes.

6.8 Implications for practice

This thesis has highlighted the importance of comorbidity, which includes: 1) Other PDs; and 2) SU. It investigated the cumulative risks within the ASPD subgroups of people who commit violence offences. It was evident that ASPD substantially contributes to the public health problem of violence, indicating that there is an urgent need to target certain resources accordingly at the ASPD + Other PD + SU client group in violence reduction rehabilitation programmes. The prevalence of ASPD in forensic settings also emphasises the importance of personality disorder treatment, particularly prioritising therapy to address symptoms of personality disorders that can

interfere with treatment responsivity. The approach would require to be more risk focused. There has been limited, although increasing, evidence for the effectiveness of personality disorder treatments for adults, but statutory guidelines for meeting criteria for more than one personality disorder, specifically comorbidity with ASPD, has been lacking.

Regarding implications for treatment, ASPD and borderline personality disorder are both, in principle, identifiable during childhood and early adolescence. It might imply that early intervention, including a robust package of SU intervention, would be effective in preventing the formation of severe personality pathology. Given SU was found to elicit a partially mediating effect between childhood conduct disorder and adult antisociality (e.g., Howard et al., 2011; Khalifa et al., 2012), reviewing the framework would improve the explanation of how personality disorders with ASPD comorbidity and substance misuse may contribute to violence. Considering risk assessment, risk management and treatment tailored to this population group may be a good starting point to reduce violence or reoffending.

6.9 Strengths and limitations

This thesis is the first to systematically investigate comorbidity of Other PD ± SU in individuals with ASPD. Despite the common phenomenon, the impact of multi-comorbidities appears to be under-researched in existing literature. It also means that populations in this thesis comprised largely of

clinical and forensic samples who were diagnosed with ASPD, and most had been involved in criminal justice or violent behaviours. The overall findings demonstrated a number of consistent themes that were reported by well-established studies. Additionally, this thesis introduced new findings and highlighted the possibility that substance misuse may play an essential moderating role in ASPD, other PDs and violence although the exact mechanism is yet to be explicitly defined by further exploration in their shared aetiology and predisposition. The key findings would inform assessment and add meaningful values to formulation, treatment, and risk management. It may also inform future editions of DSM and ICD, in that personality disorder comorbidities should be accounted for more accurately, as currently DSM and ICD are over-reliant on transdiagnostic dimensional appraisal.

One of the limitations is that only male samples were included due to small sample size in females in the primary study. Therefore, the findings cannot be generalised in all genders within forensic populations. Inconsistency in diagnosis which may be modified over time (possible criteria contamination) is a common problem with retrospective cross-sectional study. There is some evidence of variation in the prevalence of comorbidity of personality disorders with ASPD. Methodological characteristics might account for the variance. For instance, much of the literature reviewed failed to address the bias, such as small sample size or volunteer sampling. Gender, population/setting, sampling methods may also have an influence upon the reliability of the prevalence rates.

There are also additional methodological difficulties when addressing the research questions. It is difficult to separate the cause and effect in cross-sectional studies. Although this thesis had attempted to quantify the variables to capture the frequency and severity of violence, age of onset and motivation to violence are important representations of the overall severity (Howard, 2011; Howard et al., 2014). This thesis explored categorical data in personality disorders, but did not capture the dimensional profile of personality traits. The majority of the evidence synthesised in the systematic and literature reviews was relatively old, as recent publications largely focused on personality traits than categorical diagnoses. The small sample size problem has been a long-standing one in forensic psychiatric research, which also implied the challenges of not having all personality diagnoses being explored comprehensively in the clinical and forensic populations. In addition, lack of a control and/or comparison groups has been recognised as a limitation in research. For these reasons, a more comprehensive investigation of the interaction between the variables to underlying mechanism and linear effect of personality comorbidities was understandably restricted.

6.10 Future research

The psychometric assessments and future recidivism may be further explored in future research, to assess the usefulness of routinely using

these tools to identify areas that may contribute to violent reoffending, particularly among individuals with comorbid personality disorders. However, some studies have reported personality disorders with ASPD comorbidity and SU to be associated with a substantial severity of violence, whereas SU appears to confer a substantial risk of violence.

Additionally, future research may also explore how to align the two multi-dimensional classification systems using multiple assessment methods in addition to incorporating psychopathy assessment. This is likely to reduce the risk of misdiagnosis. The process is likely to remove the over-complication in the current classification systems, which will provide greater value in clinical utility and validity. Lastly, the above recommendations for future research would provide clinical insight into this specific population group.

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Appendix A

TABLE 2.2

Prevalence of ASPD + Other PD – SU

Study	Country of origin	Total sample size (N)	Comorbidity group sample size (n)	Sample characteristics	(Gender, male %)	Age range, M ± SD	Criteria used	Interview used
ASPD + other PDs - SU								
Blackburn & Coid (1999)	UK	164	ASPD + other PDs (+ psychopathy)	Offenders with personality disorders detained in a maximum-security hospital (75%) and prisons (81%), ASPD=62%	Male	34.68 ± 8.80	DSM-III	SCID-II PCL-R
Coid (2010)	UK	496	ASPD + other PDs + psychopathy (112), ASPD + other PDs (134)	Prisoners, ASPD=44.9%	Mixed - Male, 78.8%	Aged 18 and 64, 25.69 ± 5.89 (psychopathic group); 25.76 ± 7.46	DSM-IV	SCID-II PCL-R

						(control group		
Coid et al. (2007)	UK	1398	Dangerous and Severe Personality Disorder (DSPD) (212)	Offenders serving determinate sentences for sexual and violent offences Dangerous and Severe Personality Disorder (DSPD)	Male	Aged 18-75, 30.8, ± 11.4	DSM-IV	SCID-II PCL-R
Fossati et al. (2000)	Italy	431	ASPD+ Paranoid PD (1) ASPD+ Histrionic PD (4) ASPD + Narcissistic PD (10) ASPD+ Borderline (14)	Psychiatric patients (PD patients-=216)	Mixed-Male, 37.6%	29.81 ±8.34	DSM-IV	SCID-II
Goldstein et al. (2006)	US	1422	ASPD+ other PDs	A national representative sample with ASPD	Mixed-Male 66.7%	Aged 18-65	DSM-III-R	DSM-IV

Grilo et al. (2002a)	US	108	ASPD + BPD (8)	Psychiatric patients, at least one PD=47, ASPD=9.3%	Mixed-Male 71%	36.9±12.1	DSM-IV	DIDP-IV
Howard & Huband (2012)	UK	255	ASPD + BPD (40)	Volunteers enrolled in a clinical trial in PD (n=241), ASPD=11.37%	Mixed-Male 47.5%	Aged 18-65	DSM-IV	IPDE
Howard et al. (2014)	UK	100	ASPD + BPD (44)	Offenders with PD, ASPD =72%	Male	aged 21-64, 35.2 ± 9.2	DSM-IV	IPDE C-DIS
McGlashan et al. (2000)	US	571	ASPD+ other PDs	Patients with personality disorders enrolled in the collaborative longitudinal Personality Disorder study	Mixed-% not specified	Not specified	DSM-III	DIPD-IV
Morey (1988)	US	291	ASPD+ other PDs	A national sample of patients with personality disorders	Mixed-Male 44%	35, SD not specified	DSM-III,	Not specified

							DSM-III-R	
Oldham et al. (1992)	US	106	ASPD+ other PD using SCID-II (7) ASPD+ other PD using IPDE (9)	Applicants for a long-term, inpatient treatment, ASPD=7-9%	Mixed-Male 29%	27.7 ±6.2	DSM-III-R	SCID-II IPDE
Ritter et al. (2010)	Germany	183	ASPD+other PDs	Psychiatric patients	Mixed-Male 49%	Aged, not specified, adults	DSM-IV	SCID-II
Schug et al. (2007)	US	101	ASPD+ schizophrenia spectrum PD (SSPD)= (paranoid, schizoid and/or schizotypal PDs) (8)	Community adult sample, ASPD=13.86%	Mixed-% not specified	aged 21-45	DSM-IV,	SCID-II

Semiz et al. (2008)	Turkey	105	ASPD+ Borderline PD (18) ASPD+ narcissistic PD (17) ASPD+ paranoid PD (11) ASPD+ histrionic PD (9) ASPD+ psychopathy (37)	Offenders with ADHD, ASPD=40%	Male	Aged 20-36, 22.7 ±2.9	DSM-III-R	SCID-II (Turkish version) PCL-R
Sher et al. (2015)	US	323	ASPD +Borderline PD (195) ASPD +Histrionic PD (40) ASPD+ Narcissistic PD (147)	ASPD participants recruited through advertisement and via mental health outpatient mental referral	Mixed-Male 78.3%	Male, 37.4 ± 9.6; Female, 33.0 ± 10.3	DSM-IV	SIDP-IV
Stuart et al. (1998)	US and Italy	1116	ASPD+ paranoid PD (10) ASPD+ schizoid (2)	Sample from five assessment centres (44 % had PD, 4.21% had ASPD)	Mixed-Male 36.5%	Not specified	DSM-III-R	SID-R

			ASPD+ schizotypal (4) ASPD+ histrionic PD (17) ASPD+ narcissistic PD (8)					
Warren et al. (2002)	US	261 (comorbid PD=17)	ASPD + paranoid PD (52) ASPD + schizoid PD (40) ASPD + schizotypal PD (42)	Prisoners, ASPD=43%	Female	Aged <32=48.71, and aged >32= 51.29	DSM-IV	SCID-II
Westen et al. (2006)	US	291	ASPD + other PDs	A national sample of patients in clinical settings (private practice, clinic, residential setting, forensic setting)	Mixed-Male, 36.8%	Aged ≥18 years, 42.9±12.4	DSM-IV	Not specified

Zanarini et al. (1998)	US	504	ASPD+ BPD (86)	Psychiatric patients with BPD (BPD=75.19%)	Mixed-Male, 73%	Aged =27.6±6.9 (BPD group), aged 29.2±8.9 (control group)	DSM-III-R	DIPD-R Revised Diagnostic Interview for Borderlines (DIB-R)
Zanarini et al. (2004)	US	202	ASPD + BPD at baseline (38)	BPD patients with BPD who were readmitted and non-admitted	Mixed-Male, 20%	26.6 ± 5.8 (BPD group), 27.8 ± 5.5 (control group)	DSM-III-R	DIPD-R DIB-R

Appendix B

TABLE 2.3

Prevalence of ASPD + Other PD + SU

Study	Country of origin	Total sample size (N)	Comorbidity group sample size (n)	Sample characteristics	Gender, male %)	Age range, M ±SD	Criteria used	Interview used	SU measure
ASPD + other PDs + SU									
Barral et al. (2017)	Spain	937	ASPD + BPD (49)	Outpatient with SUD	Mixed – Male, 76.5%	37.75 ±10.04	Not specified	SCID-II	SCID-I
Black et al. (2016) study 1	US	65	ASPD+ BPD (16)	Subjects enrolled in randomised controlled interventions	Mixed-Male, 20%	Aged over 18, 31.4 ± 8.8	DSM-IV	SIDP-IV SCID	DSM-IV
Black et al. (2016) study 2	US	64	ASPD + BPD (44)	Offenders participated in treatment in correctional settings	Mixed-Male, 22%	Aged over 18, 30.9 ±8.8	DSM-IV	SIDP-IV SCID	DSM-IV

Cecero et al. (1999)	US	370	ASPD + BPD (31)	Substance abusers who received outpatient and inpatient treatment for substance dependence, ASPD=47.84%	Mixed-Male, 45.1%	32.6 ±7.7	DSM-III-R	SCID-II	ASI
Darke et al. (2004)	Australia	615	ASPD+ BPD (235)	Heroin users who had contact with rehabilitation facilities or agencies, ASPD=33.3%	Mixed-Male, 66%	Aged 18-57, 29.3± 7.80	DSM-IV, ICD-10	DIS, CIDI	OT)
Freestone et al. (2012)	UK	8580	ASPD+ BPD (39)	Community residents, ASPD=6.9%	Mixed-Male, 49.9%	43.7± 15.8	DSM-IV	SCID-II	AUDIT
Grilo et al. (2002b)	US	100	ASPD+ BPD (11)	Monolingual Hispanic adults who had SUD and had contact with an outpatient psychiatric community-based clinic, ASPD=15%	Mixed-Male, 69%	39.2±10.3	DSM-IV PD (Spanish version)	S-DIPD-IV (Spanish version)	
Howard et al. (2021)	US	36309	ASPD+BPD (793)	A national sample of adults, ASPD=31.2%	Mixed- % not specified	Age not specified	DSM-5	SCID-II	AUDADIS-5

Howard et al. (2009)	UK	224	ASPD+ BPD (20)	Community sample with PD (n=222) ASPD =13.8%	Mixed-48.67% Male	Aged 18-65, 36.5, SD±9.2	DSM-IV	IPDE	DSM-IV
Newhill et al. (2009)	US	220	ASPD+ BPD (72)	Psychiatric inpatients diagnosed with BPD	Mixed-Male 47.27%	Violent/aggressive group, 29.98 ±5.92; nonviolent group, 30.08 ±6.34	DSM-III-R	DSM-III-R, SID-P-R	DSM-III-R
Oguz et al. (2014)	Turkey	140	ASPD + psychopathy +Other PD (66)	Psychiatric patients diagnosed with ASPD in the community	Male	Aged 18 - 45, 21.76 ± 2.81	DSM-IV TR	SCID-II, PCL-R	DSM-IV-TR, SCID-I
Ross et al. (2003)	US	100	ASPD+ BPD =25	Patients admitted to a dual diagnosis inpatient unit, ASPD=66%	Mixed-Male, 81%	Aged 18-66 37.1 ±9.3)	DSM-III-R	SCID-II	DSM-III-R, SCID-1,

Tikkanen et al. (2009)	Finland	242	ASPD+ BPD (60)	Offenders with alcohol and violent problems detained in hospital. Offenders were grouped into two groups based on risk factors for recidivism and mortality, ASPD=56%	Male	Recidivist or decreased group, 32.4 ± 10.3; recidivist-alone group, 33.4 ± 9.3	DSM-III-R	SCID-II	DSM-III-R, SCID-1
Yang et al. (2014)	China	365	ASPD+ Avoidant PD (47) ASPD+ Paranoid PD (44) ASPD+BPD (115)	Heroin-dependent users in two compulsory isolation settings, ASPD=41.4%	Mixed-Male 54.2%	33.3±6.9	DSM-IV	SCID-IP (Chinese version)	ASI

Appendix C

TABLE 2.4

Prevalence (%) of ASPD + Other PD ±SU

Study	**Paranoid**	**Schizoid**	**Schizotypal**	**Borderline**	**Histrionic**	**Narcissistic**	**Avoidant**	**Dependent**	**Obsessive-Compulsive**	**Psychopathy (p)**	**Other**	**n (%) substance misuse /N**
ASPD + other PDs - SU												
Blackburn & Coid (1999)				(+p=24.59%)		22.56% (+P=12.20%)						
Coid & Ullrich (2010)	31.3% (+P=50.7%)	4.2% (+P=11.9%)	29.2% (+P=6%)	25.7% (+P=41.8%)	1.4% (+P=1.5%)	4.2% (+P=22.4%)	13.2% (+p=14.9%)	5.6% (+P=6.9%)	8.3% (+p=11.9%)	13.50%		
Coid et al. (2007)											DSPD^15%	

Fossati et al. (2000)	3.7%%			14.40%	6.80%	6.55%						
Goldstein et al. (2006)	22.71%	15.33%			12.38%		10.69%	13.71%	27.19%			12.38%
Grilo et al. (2002a)				7.41%								
Howard & Huband (2012)				15.69%								
Howard et al. (2014)				44%								
McGlashan et al. (2000)			12.80%	15.40%			5.20%		2%			

Morey (1988)	27.80%	5.60%	5.60%	44.40%	33.30%	55.60%	16.70%	11.10%				
Oldham et al. (1992)											6.6%^ASPD+ other PD using SCID-II 8.49%^ASPD +other PDs using IPDE	
Ritter et al. (2010)				17.50%		16.10%					BPD + NPD =44.0%	
Schug et al. (2007)	7.92%^SSPD											
Semiz et al. (2008)	10.48%			17.14%	8.57%	10.47%				35.23%		

Sher et al. (2015)				60.37%	12.38%	45.51%						
Stuart et al. (1998)	6.50%	6.50%	6.30%		12.1%%	7.10%	14.00%	6.50%	5.00%			
Warren et al. (2002)	69%	54%	56%									
Westen et al. (2006)				30.70%	50%	40.70%						
Zanarini et al. (1998)				22.70%								
Zanarini et al. (2004)				18.81%								

Colour code

offender	psychiatric	substance misuse	community

ASPD + Other PDs + SU												
Barral et al. (2017)				38.30%								NA
Black et al. (2016) study 1				24.61%								SUD=12 (18.46%)
Black et al. (2016) study 2				68.71%%								SUD=12 (18.46%)
Cecero et al. (1999)				3.38%								NA
Darke et al. (2004)				30.21%								Frequency of heroin use (2%) Polydrug use (4.3%)

Freestone et al. (2012)				0.45%								Alcohol dependence 14 (16.32%) Drug dependence 15 (17.48%)
Grilo et al. (2002b)				11%								
Howard et al. (2021)				2%								AUD 312 (0.86%) DUD 179 (0.49%) SUD 577 (1.59%)

Howard et al. (2009)				8.93%								AUD=45 % DUD=50 %
Newhill et al. (2009)				32.72%%								SUD=124 (56.36%)
Oguz et al. (2014)	32.40% (+P=63.6 %)	13.50% (+P=13. 6%)	1.40% (+P=1.5%)	18.90% (+P=39.4%)	4.10% (+P=6.1%)	2.70% (+P=9.1%)	12.20% (+P=12. 1%)	0% (+P=0%)	1.4% (+P=0%)			Current SUD=59 (90.8%) Lifetime SUD=62 (93.9%) Current AUD=50 (80.6%)

												Lifetime AUD 54 (81.8%)
Ross et al. (2003)				25%								NA
Tikkanen et al. (2009)				24.71%								NA
Yang et al. (2014)	12.10%			31.50%			12.90%					NA

Colour code

offender	psychiatric	substance misuse	community

Appendix D

TABLE 2.7

Associations between ASPD ± Other PD ± SU and violence

Study	Total sample size (N)	Sample characteristics	Measure of violence	Method of analysing	Findings	Quality assessment
Black et al. (2016)	Study 2 64	Offenders enrolled in treatment programme ASPD + BPD (n=44)	Study 2 Violent act conviction	Chi square ANOVA	Violent conviction No significant difference was found in violent act conviction	17/22 Good
Blackburn & Coid (1999)	164	Male offenders with personality disorders detained in a maximum-security hospital (75%) and prisons (81%)	Criminality Offence Histories from Criminal Record Office	Cluster analysis and univariate tests MANOVA	Criminality Cluster 1 and 3 have more convictions ($p<0.05$) than Cluster 4, 5 (non-comorbid) and whilst Group 2 has more convictions than Group 4 ($p<0.01$) and 5 ($p<0.05$). Major violence	16/22 Good

		Cluster 1 (antisocial-narcissistic) Cluster 2 (paranoid-antisocial) Cluster 3 (borderline-antisocial-passive-aggressive) They all fell at or above a total PCL-R score of 30, χ^2 (5) =67.52, p<0.0001.	a) major violence b) minor violence c) convictions		Cluster 1 has the most convictions for major and minor violence (p<.05) but differs significantly from Cluster 2, 4, 5 (p<0.05) on these offences. No differences between groups in convictions were found in sexual crimes, arson and drug and alcohol offences. P=n.s. Cluster 2 receives firearm offences, p<0001.	

Chapman & Cellucci (2007)	105	Female incarcerated offenders with substance dependence ASPD + BPD (n=not specified)	First arrest / criminal activity	Hierarchical regression and two one-way MANCOVAs	<u>Criminality</u> <u>ASPD features</u> After controlling for BPD, criminal activity remained significant, β=.44, *p*<.01. Only criminal activity was significant, although impulsivity demonstrated a close significance, *β*=.18, *p*=.08 <u>Borderline personality disorder features</u> After controlling for ASPD, impulsivity was no longer significantly associated with drug-dependence severity. None of the BPD criteria was significant, although cognitive dysregulation demonstrated a close significance, *β*=.19, *p*=.07.	17/22 Good
Coid et al. (2007)	1398	Male offenders serving determinate sentences for	Weighted prevalence of reconvictions	Receiver Operating Characteristic (ROC) (AUC)	<u>Violent offence</u> DSPD offenders reconvicted significantly more violent offences, the majority of prisoners (69.6%%) were likely to fulfil the criteria for Section 225 offence. 87.2% of	14/22 Fair

		sexual and violent offences Dangerous and Severe Personality Disorder (SPD) (n=212)	by index offence Schedule 15 offence Section 225 offence Section 227 offence	% and t-test	the non-DSPD offenders did not qualify for extended or indeterminate sentencing.	
Dellazizzo et al. (2018)	728	Male offenders detained in inpatients settings, Cluster B PD (n=628)	MacArthur Community Violence Instrument (MCVI) Serious act of violence	Cluster analysis and cluster comparisons using Chi-square test	<u>Criminally violent characteristics</u> Both cluster groups had the most severe psychopathological and criminally violent characteristics, χ^2 =157.140 (5), p<0.001 *"Early-onset violent delinquents*" emerged as a severely antisocial and criminal group, displaying high rates of aggressiveness, recklessness, impulsiveness, lack of remorse (Cluster B traits) and SUDs; b*) "Early-onset unstable-mentally ill delinquents"* emerged as a severely borderline and criminal group,	18/22 Good

					displaying high rates of impulsivity, affective instability-anger, relationship instability and paranoia (Cluster B traits) and SUDs,	
Freestone et al. (2012)	8580	Community sample, ASPD + BPD (*n*=39) Drug dependence = 43.60% Alcohol dependence = 14 36.80%	Antisocial and violent outcomes Questions relating to their lifetime antisocial behaviour Violence in past five years Violent whilst intoxicated	Logistic and multinomial regression, adjusted for demography	46% of ASPD + BPD group engaged in substance-related violence. ASPD + BPD group had a significantly higher prevalence of substance dependence when compared with BPD-only group, P<0.05. However, ASPD-only group had a significantly higher prevalence of substance dependence when compared with ASPD + BPD group. P<0.05. <u>Victim injury</u> ASPD + BPD group showed a significantly higher tendency to have injured a victim in a fight compared with BPD-only group, OR= 0.09, CI=0.02-0.43), *p*<0.005. <u>Violence frequency</u> ASPD+ BPD group reported five times (or more) violent incidents in the past five years when compared with	19/22 Excellent

			More than three victim types More than five violent incidents in last five years Victim injured		both BPD-only, OR=0.39, CI=0.080.80, *p*<0.05 and ASPD group, OR=0.39, CI=0.17-0.92, *p*<0.05 No significant difference was found between ASPB + BPD, ASPD-only and BPD-only groups in terms of violence in past five years, violence whilst intoxicated, injured self whilst violent, more than three victims types.	
Howard et al. (2009)	224	Community-resident sample with PD, ASPD + BPD(n=20)	History of convictions and custodial sentence	Chi-square Factor analysis	<u>Criminally violent characteristics in ASDP + BPD group</u> Conviction=75% Violent conviction=50% Custodial sentence=40% History of aggression=81.3%	20/22 Excellent

					ASPD+BPD group were significantly more likely to have a forensic history and a history of drug problems than the other three comparison groups (rest of sample, ASPD-only, BPD-only). It was found that ASPD + BPD individuals showed significantly higher trait anger and impulsivity; history of aggression; and also scored higher on a high order psychopathy factor.	
Howard et al. (2014)	100	Male PD offenders ASPD + BPD (n=44)	Violence Index (VI) Severity, Quantity and age of onset Patients Criminal records	Correlates of VI Multiple linear regression	<u>Violence Index (severity)</u> The ASPD + BPD group showed significantly more severe personality pathology overall, across each schizoid, schizotypal and obsessive-compulsive categories. ASPD + BPD group had a significantly greater severity of violence in their criminal record compared with other categories (*F[*1.98]=1.16, *p*<0.05). However, the groups did not differ significantly on VI (*F*[1,98] =0.10, *p*= n.s)	19/22 Excellent

Howard et al. (2021)	36309	National sample, ASPD + BPD (*n*=793) AUD (39.4%), DUD (22.6%)	Previous criminal justice contact (Y/N) e.g., serious trouble with the police or law in the last 12 months	Adjusted odds ratio of SUDs and Criminal Justice (CJ) contact by categorical PD predictor.	10.4% of participants with ASPD + BPD had past year CJ contact. The dissocial variant of BPD was associated with SUD and CJ contact. The odds of CJ outcomes were five times higher in ASPD + BPD group than those who had neither ASPD nor BPD, OR=5.34, CI=3.68-7.76, *p*<0.0001 ASPD + BPD, compared with BPD-only group, was associated with greater severity of borderline symptoms (*p*<.0001) <u>Criminality</u> After controlling for BPD symptoms, the outcomes - AUD, DUD and CJ contact remained highly significant (p<.0001) between ASPD-only and ASPD + BPD group. After controlling BPD symptoms, ASPD + BPD group, when compared with BPD -only, remained significantly associated with DUD, OR=1.35, CI=1.1-1.7, *p*<0.05, and CJ contact OR=1.6, CI=1.1-2.3, *p*<0.05.	16/22 Good

Howard et al. (2013)	53	Male forensic patients released from secure care, ASPD + BPD (*n*=19)	Police National Computer "standard" and "grave" offence, Reconviction rates	Cox regression analysis	<u>Reconviction rates</u> Patients with ASPD + BPD took significantly less time to reoffend compared with those without such comorbidity. Log=5.56, p<0.06. Self-report psychopathy scale (SRP-II) scores had limited associations with criminality and violence. SPR-1 was negatively related to verbal aggression, whereas ASPD was significantly related to physical, verbal and property aggression ($p \leq .01$).	19/22 Excellent

					Symptoms such as thought disturbance were related to violence. Substance misuse was found to be a significant predictor of arrest for a non-violent offence.	
Newhill et al. (2009)	1136	Psychiatric patients from three inpatients units, ASPD + BPD (*n*=72)	The Conflict Tactics Scale Criminal history, self-report and review of arrest records, 1) total frequency of arrests and 2) the level of severity of the most serious prior arrest	Logistic regression Moderated multiple logistic regression analyses	88% of ASPD + BPD patients had a violent or other aggressive act. <u>Recidivism</u> Individuals with BPD and psychopathic characteristics were slightly more likely to engage in future violence, OR = 1.15, χ2 (1, N = 220) = 18.45, $p < .001$; and those with comorbid ASPD + BPD were over 3.5 times more likely to engage in future violence, OR = 3.68, χ2 (1, N = 220) = 12.93, $p < .01$ ASPD and psychopathy were both significantly predictive of future violent behaviour (B = .38, $p < .01$ and B = .07, $p < .01$, respectively) and psychopathy was significantly predictive of future aggressive behaviour (B = .04, $p < .01$).	17/22 Good

					It was suggested that the shared variance between BPD, ASPD, and psychopathy was accounted for in these results, that the effect of BPD on future violent (B = .03, p=n.s.) and aggressive acts (B = .11, p=n.s.) was diminished. These findings suggested that it may be the shared variance among these constructs that is most predictive of violent behaviour. Moderated multiple logistic regression analyses, however, showed no significant interactions between BPD and ASPD or psychopathy in predicting future violent $\chi 2$ (2, 801) = 2.79, p=n.s., or other aggressive acts, $\chi 2$ (2, 801) = .03, p=n.s.	
Schug et al. (2007)	101	Community adult sample ASPD + schizophrenia	1)Criminal records	ANOVA	<u>Self-reported crime</u> ASPD+SSPD group reported significantly more criminal offending than the ASPD-only group, $p<0.05$, the SSPD-only group, $p<0.001$, and the control group, $p<0.001$	17/22 Good

		spectrum PD (SSPD)= (paranoid, schizoid and/or schizotypal PDs) (n=8)	Total number of arrests and convictions Adult extension of the Notational Youth Survey self-report delinquency measure Self-report offending for number of property, violence and drug offences		<u>Charges</u> No significant differences between groups. A significant difference was found in SSPD/ASPD and ASPD-only groups after using a percentile bootstrap method for 20% trimmed means. Both groups contained significantly more charges than SSPD-only group, p=0.0005, and the control group, p<0.0001. <u>Convictions</u> No significant differences between groups A significant difference was found in SSPD/ASPD and ASPD-only groups after using a percentile bootstrap method for 20% trimmed means. Both groups contacted significantly more convictions than SSPD-only group, p=0.0005, and the control group, p<0.001.	

					The comorbid group showed a 96.9% increase In criminal charges and a 98.2% increase in convictions compared with ASPD-only group.	
Skeem et al. (2004)	165	Male psychiatric patients at "high risk for violence" from three acute inpatient facilities Alpha group (*n*=80) ("primary psychopath", ASPD) Beta group (*n*=62) ("secondary psychopath", BPD) Delta group (*n*=23) (mentally unwell)	Violence frequency during the full-year follow-up period Hospital records	Clustering analysis, chi-square test	<u>Substance abuse</u> Alpha and Beta groups higher than Delta group), $p<0.01$ <u>Seriousness of arrest</u> Alpha group (highest), $p<.01$ <u>Incident type at follow-up</u> Alpha group had the highest weapon, threat or use incidents, but lowest throw, push/grab, kick/bite. Choke and hit, beat-up incidents than Beta and Delta groups, $p<0.01$. <u>Average number of violent incidents</u> <u>Violence during 1-year follow-up</u> <u>Violence at admission</u> <u>Ague/ threaten/ homicidal ideation</u>	13/22 Fair

		Substance abuse (at admission) =73.4% Used drugs or alcohol before incident =63.6%			No significant difference between groups	
Tikkanen et al. (2009)	445	Male offenders with alcohol and violent problems detained in hospital, ASPD + BPD (n=110)	Criminal records, (a) recidivistic violence or death (b) recidivistic violence	Multinominal logistic regression ROS analyses	<u>Recidivism</u> The risk of recidivistic violence was increased by ASPD, BPD, or ASPD/BPD, childhood maltreatment and a combination of these. The odds ratio for recidivistic offending, *OR*= 2.3, CI=1.2-4.6, AUC=0.62, *p*<0.001. However, the odds ratio for recidivistic offending or death were non-significant.	18/22 Good

Appendix E

TABLE 2.9 illustrates a summary of the mental health outcomes associated with ASPD + Other PD ± SU

Associations between ASPD + Other PDs ± SU and mental health outcomes

Study	Total sample size	Sample characteristics	Measure of mental health outcomes	Method of analysing	Findings	Quality assessment
Black et al. (2016)	Study 1 65 Study 2 64	Subjects randomised to allocated interventions Study 1 ASPD + BPD (n=15) Study 2 ASPD + BPD (n=44)	Study 1 Prior suicide attempts Prior self-harm Study 2 Anxiety disorder	Chi-square	Suicide and self-harm No significant differences were found in prior suicide attempts and prior self-harm Anxiety No significant difference was found in anxiety disorder Depression No significant difference was found in depression (BDI) and depressive disorder	17/22 Good

			Depression (Beck Depression Inventory) Depressive disorder			
Blackburn & Coid (1999)	164	Male offenders with personality disorders detained in a maximum-security hospital (75%) and prisons (81%) Cluster 1, 2 and 3 fell at or above a total PCL-R score of 30, χ^2 (5)=67.52, p<0.0001.	Depression Anxiety DSM-III	Cluster analysis and univariate tests MANOVA	<u>Affective and anxiety disorders</u> There were significant differences in history of affective (p<0.01) or anxiety disorders (p<0.001), between cluster groups. Cluster 3 (borderline-antisocial-passive-aggressive) had a higher frequency of diagnoses of both affective and anxiety disorders, than Cluster 1 (antisocial-narcissistic).	16/22 Good

Cecero et al. (1990)	370	Substance abusers who received outpatient and inpatient treatment for substance dependence ASPD + BPD (n=31)	Brief Symptom Index SCID-the severity of depression	One -way ANOVAs Chi-square T-test	<u>Depression severity</u> No significant differences were found between ASPD-only vs. ASPD + BPD in the severity of depression.	11/22 Fair
Darke et al. (2004)	*615*	Heroin users who had contact with rehabilitation facilities or agencies ASPD +BPD (n=235) Frequency of heroin use=2% Poly drug use (last month) =5.2%+	Suicide (Ever, 12 months) Overdose (Ever, 12 months) Major depression (Ever, 12 months)	Chi-square ANOVAs	<u>Suicide</u> ASPD + BPD and BPD-only groups had significantly higher levels of attempted suicide than ASPD-only (OR=3.55, CI=2.33-5.41) and no diagnosis group (OR=3.75, CI=2.28-6.16). However, no significant difference was found in recent suicide. <u>Overdose</u> ASPD + BPD group had significantly higher levels of life-time overdose than the BPD-only (OR=2.03, CI 1.06-3.86), ASPD-only (OR=1.81, CI=1.23-2.66) and no-	18/22 Good

			ICD-10, Composite International Diagnostic Instrument (CIDI), DSM-IV Depression Short-form 12		diagnosis group (OR=3.00, CI=19,93-4.48. ASPD + BPD group also had the highest level of recent overdose than other groups. <u>Depression</u> ASPD + BPD group and BPD-only group did not differ significantly in their levels of major depression. However, the ASPD + BPD group had significantly higher levels of major depression than ASPD-only group. (OR=2.65, CI=1.69-4.17) and no-diagnosis group (OR=3.63, CI= 2.04-6.46). The study suggested that increased risk appeared to be an additive risk for ASPD+ BPD with SU.	
Dellazizzo et al. (2018)	728	Male offenders detained in inpatients settings, Cluster B PD (*n*=628)	Lethality of Suicide Attempt Rating Scale	Cluster analysis and cluster comparisons	<u>Suicidal attempts</u> *"Early-onset unstable-mentally ill delinquents"*-emerged as a severely borderline and criminal group, displaying high rates of impulsivity, affective instability-	18/22 Good

			(LSARS), number of suicide attempts Anxiety Disorder DSM-IV, SCID-I	using Chi-square test	anger, relationship instability and paranoia (Cluster B traits) and SUDs, have the most severe psychopathological and suicide attempts characteristics, χ^2 =198.534 (5), p<0.001 <u>Anxiety</u> *"Early-onset unstable-mentally ill delinquents"*- emerged as a severely borderline and criminal group, displaying high rates of impulsivity, affective instability-anger, relationship instability and paranoia (Cluster B traits) and SUDs, have the most severe psychopathological and anxiety characteristics, χ^2 =43.42(5), p<0.0001	
Freestone et al. (2012)	8580	Community sample ASPD+ BPD (n=39) Drug dependence= 43.60%	Anxiety disorder Depressive disorder,	Multinominal regression, adjusted for demography	<u>Anxiety disorder</u> ASPD+ BPD group showed a significantly higher tendency to have an anxiety disorder than ASPD-only group, OR= .10, CI=0.04-0.26), p<0.001. However, no significant difference was found when compared with BPD-only group.	19/22 Excellent

		Alcohol dependence=14 36.80%	ICD-10 CIS-R		<u>Depressive disorder</u> No significant differences were found in depressive disorder between ASPD+ BPD, ASPD-only and BPD-only groups.	
Howard et al. (2009)	224	Community-resident adults ASPD+ BPD disorder(*n*=20)	Hospital records History of self-harm History of drug problems	Chi-square Factor analysis	<u>Self-harm (ever)</u> No significant difference was found between ASPD+ BPD. (85%), rest of sample (75.5%), BPD only (93.5), and ASPD-only (45.5%) groups.	20/22 Excellent
Oguz et al. (2014)	140	Psychiatric patients in the community ASPD + psychopathy (*n*=66) SUD (90.8%, current)	General Anxiety Disorder BTA Anxiety Disorder	Chi-square test t-test	<u>Anxiety disorder</u> Generalised anxiety disorder was more significantly prevalent in ASPD+ high psychopathy group (45.5%) than ASPD+ low psychopathy group (12.2%), χ^2 =19.240, p<0.001.	11/22 Fair

		SUD (93.9%, lifetime) AUD (80.6%, current) Lifetime (81.8%, lifetime)	Current Depressive Episode Lifetime depression DSM-IV-TR, SCID-I		<u>Anxiety and depression</u> No significant difference was found in BTA anxiety disorder, current depressive episode, and lifetime depression between groups. <u>Substance misuse</u> AUD and SUD were detected significantly higher in high psychopathy than low psychopathy group than other groups (p<0.05)	
Skeem et al. (2004)	165	Psychiatric patients at “high risk for violence” from three acute inpatient facilities Alpha group (n=80) (“primary	Brief Psychiatric Rating Scale (BPRS) Depression, DSM-III-R	Multiple Iterative Classification Tree (ICT) clustering analysis	<u>Depression</u> Significant difference was found between Alpha, Beta and Delta groups. Alpha group had the highest diagnosis of depression and dysthymia, which was also significantly higher than other groups, p<0.05,	13/22 Fair

		psychopath" + ASPD) Beta group (*n*=62) ("secondary psychopath" + BPD) Delta group (*n*=23) (mentally unwell) Substance abuse (at admission) =73.4% Used drugs or alcohol before incident =63.6%	Suicide attempts Hospital records	chi-square test	Alpha group had the highest incidences of depression at admission, which was also significantly higher than other groups, *p*<0.05, <u>Anxiety</u> No significant difference in anxiety at admission between Alpha, Beta and Delta groups, p=n.s. <u>Suicide</u> Alpha group had the highest incidences of suicidal threat at admission, which was also significantly higher than other groups, *p*<0.05 No significant difference in suicidal attempt at admission between groups., *p*=n.s.	

Yang et al. (2014)	882	Heroin dependent users in two compulsory isolation settings ASPD=365 (41.4%)	Depressive Disorder (Lifetime & current) DSM-IV, SCID-I, (Chinese version)	t-test chi-square logistic regression	For male users, lower educational level, unemployment, unmarried, younger age at first heroin use, previous history of compulsory treatment, larger amounts of heroin used per day and polydrug abuse during past month before admission, as well as psychiatric comorbidities of lifetime major depressive disorder and BPD were independent predictors for co-occurring ASPD, *χ2=260.89, df=8, p<0.001* For female users, younger age at first heroin use, paranoid PD and BPD were independent predictors for co-occurring ASPD, *χ2=105.12, df=8, p<0.001*	18/22 Good

Appendix F

Substance use disorders in DSM-IV and ICD-10

Dependence	*ICD-10*	*DSM-IV*
Clustering criterion	(a) Three or more of the following six symptoms occurring together for at least 1 month, or if <1 month, occurring together repeatedly within a 12-month period	(a) A maladaptive pattern of substance use, leading to clinically significant impairment or distress as manifested by three or more of the following seven symptoms occurring in the same 12-month period
Tolerance	Need for significantly increased amounts of substance to achieve intoxication or desired effect or markedly diminished effect with continued use of the same amount of substance	Need for markedly increased amounts of substance to achieve intoxication or desired effect; or markedly diminished effect with continued use of the same amount of substance
Withdrawal	A physiological withdrawal state of the characteristic withdrawal syndrome for the substance, or use of the substance (or closely related) to relieve or avoid symptoms	The characteristic withdrawal syndrome from the substance or same substance (or a closely related) is taken to relieve or avoid withdrawal symptoms
Impaired control	Difficulties controlling use in terms of onset, termination, or levels of use; using in larger amounts or over a longer period than intended; or a persistent desire or unsuccessful efforts to reduce or control use	Persistent desire or one or more unsuccessful efforts to cut down or control use Using in larger amounts or over a longer period than the person intended
Neglect of activities	Important alternative pleasures or interests given up or reduced because of use; *or*	Important social, occupational, or recreational activities given up or reduced because of use
Time spent in substance-related activity	A great deal of time spent in activities necessary to obtain or use or to recover from its effects	A great deal of time spent in activities necessary to obtain, to use or to recover from the effects of use
Continued use despite problems	Persisting with use despite clear evidence and knowledge of harmful physical or psychological consequences	Continued use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to be caused or exacerbated by use
Compulsion	Strong desire or sense of compulsion to use	None
Abuse	(a) (Harmful use) Clear evidence that substance use contributed to physical or psychological harm, which may lead to disability/adverse consequences (b) The nature of harm should be clearly identifiable (and specified) (c) The pattern of use has persisted for at least 1 month or has occurred repeatedly within a 12-month period (d) Symptoms do not meet criteria for any other mental or behavioral disorder related to substance in the same time period (except for acute intoxication)	(a) A maladaptive pattern of substance use, leading to clinically significant impairment or distress as manifested by at least one of the following occurring within a 12-month period Recurrent use of substance resulting in a failure to fulfill major role obligations at work, school, or home (e.g. repeated absences or poor work performance related to substance use; related absences, suspensions, or expulsions from school; neglect of children or household) Recurrent use in situations in which it is physically hazardous (e.g. driving an automobile or operating a machine when impaired by substance use) recurrent substance-related legal problems (e.g. arrests for related disorderly conduct) Continued substance use despite having persistent or recurrent social or interpersonal problems caused by or exacerbated by the effects of substance (e.g. arguments with spouse about consequences of intoxication) (b) Symptoms have never met criteria for substance dependence

Retrieved from Hasin, D.S., Hatzenbuehler, M.L., Keyes, K.M., & Ogburn, E.L. (2006). Substance use disorders: Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) and International Classification of Diseases, tenth edition (ICD-10). *Addiction, 101 Suppl 1*, 59-75 .

APPENDIX G

HENDERSON
INSURANCE BROKERS
an Aon company

Trueman House
Capitol Park
Leeds
West Yorkshire
LS27 0TS

T 0113 393 6300

www.hibl.co.uk

To Whom It May Concern

Our Ref: 5701854
Date: 31st July 2018

Dear Sirs,

EVIDENCE OF INSURANCE – University of Nottingham &/or Subsidiary Companies

We are writing to confirm that we act as Insurance Brokers to the above client and that we have arranged liability insurance on their behalf as detailed below:

EMPLOYERS LIABILITY

Cover in respect of indemnity for claims made for death, injury or disease to any person arising out of and in the course of their employment

INSURER	:	Allianz Insurance plc
POLICY NUMBER	:	TO BE CONFIRMED
PERIOD OF INSURANCE	:	1st August 2018 to 31st July 2019
LIMIT OF INDEMNITY	:	£25,000,000 each occurrence including costs and expenses

PUBLIC/PRODUCTS LIABILITY

Indemnity in respect of claims made for death, injury or disease to persons (other than employees) or loss or damage to third party property arising out of and in the course of the business.

INSURER	:	Allianz Insurance plc & Chubb European Group Ltd
POLICY NUMBER	:	TO BE CONFIRMED
PERIOD OF INSURANCE	:	1st August 2018 to 31st July 2019
LIMIT OF INDEMNITY	:	£35,000,000 each occurrence (and in the aggregate in respect of Products Liability)

PROFESSIONAL INDEMNITY

Indemnity in respect of the Legal Liability to Third Parties for breach of professional duty due to negligent act, error or omission in connection with your business.

INSURER	:	Royal & Sun Alliance
POLICY NUMBER	:	RKK792185
PERIOD OF INSURANCE	:	1st August 2018 to 31st July 2019
LIMIT OF INDEMNITY	:	£10,000,000 each occurrence and in the aggregate

Subject to the policy terms, conditions, limitations, exclusions and cancellation provisions.

Registered Office Trueman House • Capitol Park • Leeds • LS27 0TS
Company Registration Number: 1985767
Henderson Insurance Brokers Limited is authorised and regulated by the Financial Conduct Authority
Henderson Insurance Brokers Limited is a subsidiary of Aon UK Limited
Aon UK Limited is authorised and regulated by the Financial Conduct Authority

APPENDIX H

University of Nottingham
UK CHINA MALAYSIA

Research and Innovation
University of Nottingham
East Atrium, Jubilee Conference Centre
Triumph Road
Nottingham
NG8 1DH

0115 8467906
sponsor@nottingham.ac.uk

Our reference: R&I: 19022
IRAS Project ID: 262492

Health Research Authority
Research Ethics Committee

Dr Vincent Egan
Associate Professor
Room B23 Yang Fujia
Jubilee Campus
Wollaton Road
Nottingham
NG8 1BB

30th April 2019

Dear Sir or Madam,

Sponsorship Statement

Re: Psychiatric co-morbidity and psychopathology in mentally disordered offenders: A Latent Class Analysis

I can confirm that this research proposal has been discussed with the Chief Investigator and agreement to sponsor the research is in place.

An appropriate process of scientific critique has demonstrated that this research proposal is worthwhile and of high scientific quality.*

Any necessary indemnity or insurance arrangements will be in place before this research starts. Arrangements will be in place before the study starts for the research team to access resources and support to deliver the research as proposed.

Wording has been included in the participant information sheets to address the requirements of GDPR for transparency information and has been drafted by the sponsor to ensure consistency and compliance with the University's privacy notice, HRA guidance and the expectations of other organisations, therefore the HRA template wording has not been used verbatim.

Arrangements to allocate responsibilities for the management, monitoring and reporting of the research will be in place before the research starts.

The duties of sponsors set out in the NHS Research Governance Framework for Health and Social Care will be undertaken in relation to this research.**

* Not applicable to student research (except doctoral research).
** Not applicable to research outside the scope of the Research Governance Framework.

Yours faithfully

Angela Shone
Head of Research Governance
University of Nottingham

world-changing research
from The University of Nottingham

Appendix I

Dr Vicent Egan
Associate Professor, HCPC-Registered Chartered
CLinical and Forensic Psychologist
University if Nottingham
School of Medicine University of Nottingham
Yang Fujia Jubilee Campus
Wollaton Road Nottingham
NG8 1BB

Email: hra.approval@nhs.net
Research-permissions@wales.nhs.uk

19 May 2019

Dear Dr. Egan,

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	**Psychiatric co-morbidity and psychopathology in mentally disordered offenders: A Latent Class Analysis**
IRAS project ID:	**262492**
Protocol number:	**19022**
Sponsor	**University of Nottingham**

I am pleased to confirm that **HRA and Health and Care Research Wales (HCRW) Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

Please now work with participating NHS organisations to confirm capacity and capability, in line with the instructions provided in the "Information to support study set up" section towards the end of this letter.

How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?
HRA and HCRW Approval does not apply to NHS/HSC organisations within Northern Ireland and Scotland.

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report (including this letter) have been sent to the coordinating centre of each participating nation. The relevant national coordinating function/s will contact you as appropriate.