PERSONALITY DISORDER IN AN OFFENDING POPULATION: DEVELOPMENTAL PRECURSORS AND OUTCOME FROM A THERAPEUTIC COMMUNITY PRISON

by

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Abstract

This thesis considers personality disorder (PD) within a forensic population. The first chapter is comprised of a systematic literature review of the association between specific offence typologies and specific PDs. Antisocial and narcissistic PD were more prevalent in non-sexual groups, whilst avoidant, schizoid and borderline PD were more prevalent in sexual offenders. However, heterogeneity in the methodologies of included studies meant that robust conclusions could not be drawn. A narrower research question was recommended, along with more comparable studies.

The second chapter explores PD within a therapeutic community prison. PD, identified by the Personality Diagnostic Questionnaire (PDQ) (Hyler, 1994) was highly prevalent in this sample (86.2%). Intervention was found to be effective in reducing disordered personality traits, such as psychoticism, impulsivity and hostility. Further to this, clinically significant change in personality traits showed a difference between clusters. For example, criminality reduced significantly within cluster B disorders. This research demonstrated the effective treatment of PD offenders within a therapeutic community, but further research is required before robust conclusions can be drawn.

Finally, the findings from the thesis were placed in the context of the critique of the PDQ. Findings suggested the PDQ has a tendency to over-diagnose PD. However, the challenges faced in diagnosing PD per se and limitations of the current diagnostic criteria were discussed.

Overall, the thesis raises some interesting findings into the effectiveness of a therapeutic community prison with PD offenders. This may be beneficial to guide future research in the area and the development of effective interventions with such a population.

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CHAPTER 1.

INTRODUCTION TO THESIS

In 1998, personality disorder (PD) was reported to be present in 78% of male remand and 64% of male sentenced prisoners in a UK prison population (Singleton et al., 1998). A systematic review of 62 studies looking at mental disorders in prisons within western countries reported PD to be prevalent in 65% of offenders (Fazel & Danesh, 2002). However, what is less clear is the functional link between PD and offending behaviour (Howells, Krishnan & Daffern, 2007). The purpose of this introduction is to briefly review key topics, which will be covered in more depth through the thesis. Firstly, this introduction outlines what is meant by PD and theories of development. Following this, research on the link between offending behaviour and PD is outlined. The availability of effective treatment of individuals who meet diagnosis for a PD and present with risk of offending are discussed. This is placed in the context of the aims of the current thesis.

1.1 Definition of PD

Personality is considered to be constructed from a complex pattern of ingrained psychological traits (Millon, 2004). It is considered disordered when traits become inflexible, maladaptive, cause significant harm and are persistent (American Psychological Association [APA], 2000). The two major diagnostic classification systems that describe PD are, the Diagnostic and Statistical Manual of Mental Disorders IV-TR (DSM-IV-TR; American Psychiatric Association, 2000) and the International Classification of Diseases 10 (ICD-10; World Health Organisation [WHO], 1992). The ICD-10 defines PD as 'a severe disturbance in the character

logical condition and behavioural tendencies of the individual, usually involving several areas of the personality, and nearly always associated with considerable personal and social disruption'. Similarly the DSM-IV defines PD 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 or impairment'. However, proposed changes to DSM-IV-TR (APA, 2000) are underway and it is expected that in the publication of DSM-V in 2013 the definition will require that an individual must demonstrate a high level of impairment in two areas of functioning, including self (sense of identity and self-directedness) and interpersonal (empathy and intimacy). This new criterion to diagnosis aids understanding of situations where PD may present itself. However, the manner in which individuals with PDs present themselves, varies.

Currently, DSM-IV TR (APA, 2000) lists ten types of PD organised into three clusters. Each disorder consists of a unique combination of attitudes, emotions, and behaviours. Cluster A contains those disorders considered odd or eccentric; cluster B includes dramatic, emotional or erratic disorders and finally cluster C is defined by anxious or fearful disorders. However, the American Psychological Association have proposed that with the publication of DSM-V, a number of disorders and the subordinate clusters classification will be removed. It is proposed that only antisocial (ASPD), avoidant, borderline (BPD), narcissistic, obsessive-compulsive (OCPD) and schizotypal PDs will remain. The new diagnostic system will adopt a hybrid dimensional-categorical model where PDs will be aligned with particular personality traits and levels of impairment. The intention behind these revisions is that personality

characteristics are described for each individual, rather than being aligned to a category. In addition, the severity of the trait can be graded, allowing measurement of a reduction or increase in pathology. DSM-IV-TR (APA, 2000) and its predecessors have been criticised for its numerous criteria for diagnosing or eliminating PD, which is resource intensive for practitioners. Despite the large number of criteria, it is considered that these do not exhaust the diversity of PD seen with a clinical population (Krueger, Skodol, Livesley, Shrout & Huang, 2007). This new approach also intends to better accommodate heterogeneity of both the level of personality functioning and pathological traits within PD types.

However, changes in diagnosis will not change other issues. PD will remain problematic, not only for those presenting with difficulty in functioning in these areas but also for those around them and service providers. Understanding what causes or contributes to the development of a PD may inform treatment and, as such, minimise the harmful effects of such a disorder.

1.2 Etiology of PD

The development of a PD is understood to be a product of biological, psychological and social factors (Alwin et al., 2006). The concept that we are born with different temperaments and that some elements of our personality may be inherited, which increase an individual's vulnerability to developing disordered personality, form the biological argument (Paris, 1996). Social and environmental factors are also understood to contribute to the development of PDs. For example, adverse early experiences, such as neglect or abuse have been identified within the literature (Lieb,

Zanari, Schmahl, Linehan & Bohus, 2004; Luntz & Widom, 1994; Paris, 1996). Johnson, Cohen, Brown, Smailes and Bernstein (1999) reported that individuals who experience child abuse and neglect are four times more likely to meet diagnosis for PD in early adulthood than those who do not experience these adverse events. One theory as to why maltreatment maybe associated with PD is attachment theory (Bowlby, 1988). Attachment theory is concerned with the quality and type of attachments people make as they grow up. Some experts believe that how your mother or primary carer met your needs when you were a child may have influenced the type and degree of your personality difficulties (Adler, 1985; Paris, 1996). Paris (1996) found PD to be associated with poor parental bonding and difficulties concerned with lack of affection (neglect), discipline/boundaries (under-control) and autonomy (over-control). A longitudinal study, spanning 20 years, of 976 families in New York found that the presence of maladaptive parenting increased the likelihood of being diagnosed with a PD in late adolescence or early adulthood (OR = 1.36; Johnson, Cohen, Kasen, Smailes & Brook, 2001).

In summary, the literature to date does not identify specific incidents or experiences that determine the development of a PD. However, it appears that maltreatment or exposure to adverse experiences in childhood may have long term, detrimental effects on an individual's personality functioning (Johnson et al., 1999). This must be placed in the context that many individuals who experience difficulties within childhood do not go on to develop disorders of personality, and trauma alone is therefore neither a necessary nor sufficient cause of long-term difficulties. For those who do go on to develop pervasive and difficult styles of interacting with others, there is some evidence that there may be an association with criminal behaviour, and that high

percentages of incarcerated individuals may be diagnosed as having one or more PD.

1.3 PD and Offending

Although a diagnosis of PD does not determine involvement in criminal behavior, high rates of PD have been found in prisons (Singleton, Meltzer, Gatward, Coid, & Deasy, 1998) and it has been proposed that offenders with a PD may be at higher risk of committing serious crimes (Blackburn, 2000). Hare (1996) and Stalenheim and Von Knorring (1998) report a high correlation between PD and forensic problems.

Coid (2003) presented a developmental framework to aid understanding of risk factors for high-risk offenders with PD (Table 1). The model assumes that with progression through the four stages, comes increasing severity of PD and antisocial behaviour. However, the impact of protective factors is recognised, along with the assumption that the majority of individuals desist from crime during the earlier stages and do not reach the final stage. The four stages start with what is termed 'childhood' and progress through to 'mid-life'. Biological factors (e.g., temperament), combined with environmental or social factors (e.g., poverty) are considered to contribute to the early stages of a development of PD in a high-risk offending population. Subsequently, exposure to abuse, family disruption, peer influences and criminality are considered to exacerbate the pathway to development of a PD and engagement in criminal behaviour. In early adulthood, factors such as substance misuse, Axis I disorders, poor work record and criminal lifestyle/versatility are included within the developmental pathway. Career criminality and institutionalisation in secure settings are considered features of the final stage. Although Coid (2003) acknowledged the

Table 1. Longitudinal (Developmental) Conceptual Framework for High-Risk Offenders with PD (Coid, 2003)

Stage	Age	Risk Factors
A	*Childhood*	
	Temperament	Genetic
	Oppositional defiant disorder	Prenatal, perinatal
	Attention-deficit hyperactivity disorder	Family environment
		CNS integrity, IQ
	Conduct disorder	Poverty, housing
B	*Late childhood/adolescence*	
	Escalating delinquency	Few protective factors
	Peer-group problems	Physical/sexual abuse
	Emerging borderline features (mood and behavioural disturbance)	Family disruption/criminality
		Neighbourhood/peer/school influences
	Psychosexual maladjustment	
C	*Early adulthood*	
	Persisting criminality	Pattern set by earlier factors, maintained by:
	Criminal lifestyle/versatility	
	Substance misuse	-criminal subculture
	Poor work record	-imprisonment
	Relationship difficulties	-social isolation
	Sexual deviations	-anti-establishment attitudes
	Hierarchical appearance of Axis I disorders	-lack of alternatives and skills
D	*Mid-life*	
	Career criminality	
	Psychopathy (high PCL-R score)	
	Multiple Axis I disorders	
	Repetitive, pervasive antisocial behaviour	
	Institutionalisation in secure facilities	

Note. CNS, central nervous system; PCL-R, Psychopathy Check-List - Revised.

presence of protective factors contribute to individuals desisting from antisocial behaviour and reduce the likelihood of developing PD, the model clearly illustrates that once an individual has the risk factors identified in the early stages, the likelihood of these developing and exposure to subsequent risk factors increases. How useful this model is to aid understanding of development of PD in medium or low risk offenders however, is not known. This model will be referred to again in the research chapter.

Offenders diagnosed with a PD have been found to start their criminal careers earlier, commit more crimes throughout their criminal career, employ a broader range of criminal activities and have significantly higher re-imprisonment rates than non-PD offenders (Hare, 1996). However, there is less agreement within research as to which PDs are more frequently found within a forensic sample. ASPD (Blackburn et al., 2003; Maier et al., 1992; Singleton et al., 1998), paranoid (Singleton et al., 1998), OCPD and schizotypal (Maier et al., 1992), and narcissistic (Blackburn et al., 2003; Coid, 2003) and BPD (Blackburn et al., 2003) have all been found to be frequently diagnosed in a male forensic population. Understanding which disorders are more prevalent in such a sample may not only aid developmental understanding of the disorders but also risk factors associated with it.

A report by the British Psychological Society (Alwin et al., 2006) proposed that in order to differentiate the link between risk factors, PD and offending behaviour more clearly, research into offending behaviour and its association with PD would be valued. This research was also highlighted as necessary in the publication of the guidance 'Personality disorder: No Longer a Diagnosis of Exclusion by the National Institute for Mental Health for England' (NIMH(E), 2003). This publication came into effect in response to a lack of intervention available for PD service-users and a lack of recognition for it (Snowden & Kane, 2003). Somewhat in contrast to this however, is the publication of the Mental Health Act 2007.

Legislations, such as the Mental Health Act 2007 have come into effect in the recent years, which impact on the treatment and detention of PD service-users. The 1983

Mental Health Act stated that in order to detain someone forcefully, you had to have their best interests in mind and be certain that you could provide adequate treatment and provision of care. However, this clause has been removed in The Mental Health Act 2007, and states that you do not have to treat someone in order to detain them (Department of Health, 2007). However, in 2000, a legislation introduced jointly by the Home Office and Department of Health, proposed that a minority of persons with severe personality disorder who pose a risk of serious violent and sexual crime would be identified and detained (Home Office and Department of Health, 2000). This minority fell under the classification of Dangerous and Severe Personality Disorder (DSPD). The DSPD Programme was set up in late 1999, and in 2001 the Government made a manifesto commitment to provide 300 high secure places for these individuals (Sizmur & Noutch, 2005). More recently, focus has shifted away from detention and towards treatment and management of such offenders to reduce their risk of reoffending (Ullrich, Yang & Coid, 2010). However, Ullrich et al. (2010) states little empirical research into the management and treatment of such a population has been prompted by the introduction of DSPD sites.

1.4 Treatment of PD Offenders

Typically, social learning and cognitive-behavioural models have been the focus of interventions with forensic populations (Alwin et al., 2006). The Ministry of Justice has been proactive in developing intervention based on the 'What Works' literature within prisons (McGuire, 2002). However, PD offenders have not been specifically considered within this framework. Further to this, there is limited literature indicating what treatments, if any, are effective in treating PD, particularly in respect to a forensic population (Howells et al., 2007; Warren et al., 2003). Both pharmalogical

and 'talking therapies', including psychodynamic, cognitive and behavioural approaches, have traditionally been implemented with those presenting with PDs (Howells et al., 2007). Psychotherapeutic interventions have shown some effectiveness in the treatment of PD (Bateman & Fonagy, 2000; Perry, Banon & Ianni, 1999; Warren et al., 2003). However, there is evidence of adverse treatment effects in those with psychopathic disorder within a therapeutic community (Harris, Rice & Cormier, 1994). However, methodological concerns have arisen from this research and more recent research has not found such a link (D'Silva, Duggan & McCarthy, 2004). ASPD is a feature of psychopathy, therefore further research into the implications of adverse treatment effects on PD, particularly those with ASPD, would be a valuable contribution to the field. As rates of PD have been shown to be high in prisons, there exists little confidence in effective treatment and subsequently a reduction in risk, the importance of identifying effective treatment is apparent.

Howells et al. (2007) have outlined the proposed difficulties in both the treatment of PD and evidencing any treatment effects. Factors such as substance misuse have shown to have a functional link to offending behaviour. Substance misuse is temporal, meaning it is a temporary state that can come and go. Therefore, in terms of measuring treatment, when substances are removed, whether a reduction in offending has occurred can be observed and measured. PDs however, are not temporal. They are stable (DSM-IV-TR, APA 2000) and are part of an individual's functioning: therefore they are less easily controlled, removed and subsequently measured. In addition, evidence that treatment for PD will result in a reduction of offending, has not yet been proven (Howells et al., 2007).

1.5 Conclusions from the Research

The literature briefly explored in this introduction firstly indicates that adverse childhood experiences have been shown to be associated with PD. In addition, PD has been linked to different types of offending. There is a wealth of literature which indicates these same childhood experiences (or risk factors), are also associated with an increased likelihood of offending. Coid (2003) produces a useful model to illustrate this pattern, comparing the developmental pathway to PD and high risk for offending. What is less clear is whether PD in fact mediates a relationship between risk factors and offending behaviour. The literature is clear in identification of considerable rates of PD within offending populations and the need for effective treatment has been demonstrated. Despite this, limited literature exploring effective treatment of PD offenders is reported or conclusive.

1.6 Aims of the Thesis

In light of previous research, this thesis aims to identify psychosocial factors and criminal behaviour associated with specific PDs and the effectiveness of a therapeutic community prison in treatment of offenders presenting with such disorders. To achieve this aim, the following objectives have been highlighted:

- To identify whether specific PDs are associated with different offence types,

- To explore psychosocial factors that may act as risk factors for developing a PD,

- To investigate the effectiveness of a therapeutic community prison intervention, according to specific PDs and psychosocial factors,

- To establish if PD mediates a relationship between psychosocial factors and therapeutic effectiveness within an offending population.

1.7 Current Thesis (Summaries of Chapters)

To achieve these aims, chapter two comprises a literature review of PD according to offence typology. The intention was to explore if previous research had identified that certain PDs are more prevalent in an offending population. Further to this, if particular PDs or clusters are related to specific types of offending and, potentially, to specific risk areas.

Research conducted in a prison based therapeutic community is reported in chapter three. The research considered a number of factors related to PD and offending behaviour. The Personality Diagnostic Questionnaire (PDQ) (Hyler, 1994) was used to identifying the presence of PD traits. Firstly, the prevalence of specific PD traits in such a population was explored. Psychosocial factors and their relationship to specific PD traits were analysed that provides a comparison with previous research reviewed. The effectiveness of the intervention was measured according to clinically significant change in psychometric scores post intervention and were explored according to both PD traits and psychosocial factors. The intention was to establish if PD traits were a mediating variable between psychosocial factors and therapeutic outcome within a forensic population.

In the interest of ensuring PD is assessed reliably and validly, the fourth chapter is a critique of the PDQ (Hyler, 1994). The aim of this chapter was to identify the reliability, validity and practical utility of this tool. Discussions of the problems associated with measuring PD per se, and with the use of psychometric tests in this

application are discussed. The thesis concludes with a general review of the findings and potential implications.

Chapter 2

A Literature Review Following a Systematic Approach

The Association between Personality Disorders

and Offence Typologies

2.1. Abstract

Aim: To systematically review the research base investigating the association between PDs and offence typologies.

Method: Scoping methods were employed to assess the need for the current review. A literature review was carried out following a semi-systematic descriptive approach of cohort studies. Those studies with an adult male forensic population, clear description of offence type and a diagnosis of PD were included in the review. Following this, papers were quality assessed according to predefined criteria including the study design, sample selection, confounding factors and validity. Data was extracted and synthesised from included studies using a qualitative approach.

Results: Initial searching yielded 17,004 studies. Of these, 201 duplicate papers and studies using the same data as other included studies were removed. A further 15,915 papers were excluded as they did not meet the inclusion criteria, based on their title and abstract and 852 papers were removed following hand search of the content of the paper. In addition to this, 24 papers were excluded, as they could not be accessed. One study was excluded as it was considered to be of poor quality. In total, nine studies were included in the review that met the inclusion criteria and were assessed to be of good quality.

Conclusions: Significant results were found within studies when comparing offence typology to diagnoses of PD however, due to the heterogeneity of studies, statistical comparison between groups could not be established. The majority of studies compared sexual offenders to other groups of offenders or non-offenders. Diagnosis of ASPD and narcissistic PD were more frequently found in non-sexual offenders than sexual offenders. Sexual offenders were more frequently diagnosed with all other disorders, excluding cluster A and paranoid, which were not reported in any studies.

The most promising findings were for schizoid, BPD and avoidant, which a number of studies found to be significantly more common in sexual offenders than comparison groups. Findings should be interpreted with caution due to methodological limitations and the heterogeneity of the included studies.

2.2 Introduction

As stated in the introduction, research has identified a link between PD in general and offending behaviour (Fazel & Danesh, 2002; Hare, 1996; Singleton et al., 1998; Stalenheim & Von Knorring, 1998). However, research has attempted to identify more detailed findings between these variables. Firstly, with regard to any PD and specific offences, the Home Office conducted a literature review on offenders' risk of serious harm. Within this review, they reported links between PDs and offences of general violence, domestic violence, sexual offending, stalking and arson (Powis, 2002). These findings were supported by Coid, Hickey, Kahtan, Zhang and Yang (2007) in a sample of 1344 patients from medium secure forensic units within the UK. Coid et al. (2007) explored risk factors for reoffending and found that offenders with a primary diagnosis of PD were at increased risk of future violent offending. They reported that the presence of any PD increased the risk of violent reconviction (hazard ratio 2.4), sexual reconviction (hazard ratio 3.0), acquisitive reconviction (hazard ratio 2.4), arson reconviction (hazard ratio 2.0), reconviction of a 'grave' offence (homicide, serious wounding, rape, buggery, arson, robbery and aggravated burglary) (hazard ratio 1.7) and reconviction of any offence (hazard ratio 2.6).

Wallace et al. (1998) studied 3838 individuals found guilty in the higher court (Court of Appeal, Crown Court and High Court) between 1993 and 1995. The presence of PD increased the likelihood of violent offences (OR = 18.7), homicide offences (OR = 28.7), offences against property (OR = 10.2) and sexual offending (OR = 14.7, $p < .0001$). Thus, literature suggests that PD may well be linked to specific types of offending, however whether specific PDs can be linked to specific types of offending is less clear.

Fountoulakis, Leucht and Kaprinis (2008) conducted a review of the literature into the link between PD and violence. They found that research suggests that PDs, especially ASPD and BPD, are strongly related to the manifestation of violent acts. In addition, substance abuse is a strong factor, which could act either independently or additionally to personality traits. ASPD appears to be the most commonly reported of the PDs in this area of research. Coid et al. (2007) reported an increased risk of future violent offending in those diagnosed with ASPD. They found that those with ASPD were more likely be reconvicted of a violent (hazard ratio 1.6), sexual (hazard ratio 2.0), acquisitive (hazard ratio 1.1) arson (hazard ratio 0.86), 'grave' (hazard ratio 1.2) and 'any' (hazard ratio 1.4) offence, compared to those without this diagnosis (Coid et al., 2007).

Elsayed, Al-Zahrani and Rashad (2010) investigated the characteristics of mentally ill offenders using 100 court reports. They found a significant difference in offence type and diagnosis of ASPD (p<.001). Out of 100 cases, ten (10%) were found to have a diagnosis of ASPD. Of those, seven had committed an index offence of robbery, two cases had committed a violent index offence and one had committed an offence categorised as 'other'. None of the cases with a diagnosis of ASPD were considered to have committed a crime motivated by financial gain or murder. This research suggests an association between ASPD and violence, as robbery is generally classified as a violent act. The absence of murderers within this PD may suggest those with ASPD do not commit such offences, however it is more likely that this is a reflection of the small sample size. Tiihonen and Hakola (1994) reported a link between ASPD and homicide recidivists. They conducted a study of all homicide recidivists in

Finland who had committed their last offence between 1988 and 1993. They reported 11 of the 13 participants (85%) had a diagnosis of ASPD (Tiihonen & Hakola, 1994). In addition, ASPD has also been found to be predictive of both theft and those engaging in multiple types of crime (Fridell, Hesse, Jaeger, & Kuhlhorn, 2008). Fridell et al. (2008) found that within a sample of substance abusers observed over the course of a year, those diagnosed with ASPD were 2.16 times more likely to be charged with theft only (p<0.001), and 2.44 times more likely to be charged with committing multiple types of crime (p<0.001). However, a longitudinal study of 369 male prisoners followed up over a 10 to 12 year period explored whether personality could predict specific types of offending behaviour (Listwan, 2001). Those with neurotic personality traits were found to be significantly more likely than the other personality types to be arrested for a drug related offense. However, personality types were not significantly different from one another in the analysis of violent or property offense types.

Research in this area has also considered female offenders. A sample of 200 non-psychotic women who met criteria for one of the four Cluster B PDs and 50 non-psychotic women who did not meet criteria for these disorders were compared (Warren et al., 2002). A high degree of co morbidity between the various Cluster B diagnoses and a significant association with various types of violent crime and nonviolent criminality was reported. Significant relationships were found between ASPD and institutional violence, and narcissistic and incarceration for a violent crime. Cluster A diagnosis was found to be associated with both incarceration for a violent crime and incarceration for prostitution.

Other groups have studied sexual offenders and personality characteristics. Rigonatti, Serafim, Caires, Filho and Arboleda-Florez (2006) compared 50 murders and 50 rapists in a maximum-security facility located in Brazil. They found high rates of both ASPD and sadistic types of personality (96% and 86%, respectively, in the murderer group, and 92% and 74%, respectively, in the rapist group). However, dependent and histrionic PD were significantly more frequently found in the murder group than the rapists ($p<.001$). Oliver, Beech, Fisher and Beckett (2007) utilised a sample of 58 sexual murderers and 112 rapists who were about to undergo treatment in prison for sexual offending behaviour. They found that the prevalence rates of avoidant and ASPD were similar across groups. However, groups did differ on features of ASPD, measured by the Antisocial Personality Questionnaire (APQ) (Blackburn & Fawcett, 1996). Rapists had significantly higher scores on paranoid suspicion, resentment and self-esteem traits. These findings indicated that rapists had poorer self-esteem and more negative views of the world and others, than sexual murders did.

Research on special populations revealed similar results. Of a sample of 101 sexual offenders and 102 non-sexual offenders aged over 59 years, 33% had a PD. Sexual offenders had more schizoid, OCPD and avoidant traits, and fewer ASPD traits than non sexual offenders (Fazel, Hope, O'Donnell & Jacoby, 2002). Langevin (2003) compared sexual murders to sexual offenders who had not killed their victims. From a sample of 2,800 cases, 33 men had murdered or attempted to murder their victim after engaging in sexual activity with them. Langevin (2003) reported that rates of ASPD significantly differed between sexual murders (51%) and sexual offenders who did not engage in murdering, or attempting to murder their victims (11%) ($p<.001$). Comparison of 86 matricidal and 106 patricidal males offenders showed that BPD

was significantly more common among patricidal than matricidal offenders (p<.001) (Liettu, Saavala, Hakko, Rasanen & Joukamaa, 2008).

Examination of 27 violent, 20 sexual and 13 arsonist offenders detained in maximum security hospitals, all patients met the criteria for DSM-III-R PD diagnosis (APA, 1987). However, there were no significant group differences on a number of characteristics, including personality profile (Dolan, Millington & Park, 2002). Authors have considered associations between arsonist offenders and PD. Lindberg, Holi, Tani and Virkkunen (2005) looked at pretrial psychiatric assessment of 90 arson recidivists. They found ASPD was the most common PD in the sample (22 % of recidivists) and that some of the best predictors of recidivist fire setting were impulsive characteristics. However, none of the ASPD fire-setters in Lindberg et al.'s (2005) sample were pure arsonists. This limitation is present in most studies of criminal offenders.

The literature suggests that certain PDs, specifically ASPD and BPD, are found to occur more frequently within groups determined by offence type. However, these studies also suggest that there is no clear consensus or understanding of whether certain PDs are predictive of certain types of offending, and if so, what they are. Some studies have reported ASPD to be more common in violent or acquisitive offending (Coid et al., 2007; Elsayed et al., 2010; Fazel et al., 2002; Fountoulakis et al., 2008; Fridell et al., 2008; Tiihonen & Hakola, 1994), whilst others report sexual (Langevin, 2003; Liettu et al., 2008; Oliver et al., 2007; Rigonatti et al., 2006) or arsonist offending (Lindberg et al., 2005). These conflicting findings identify the need for the current review. Greater knowledge in this area would hope to expand our

understanding of the functional link between offending behaviour and PD. It may not provide the complete answer, but may direct future areas of research. For example, if ASPD and other cluster B disorders are more prevalent in offending populations; future research may find it beneficial to focus studies within these disorders. In addition, those involved in the development of effective intervention may want to identify treatment needs for those presenting with disorders identified to be related to criminal behaviour.

2.2.1 The current review

The aim of current review is, therefore to systematically evaluate the research investigating the relationship between PD and offence typologies. The occurrence and type of PD, when grouped according to offence typology, will be considered to see if any commonalities can be found. First, a scoping exercise was conducted to establish whether previous systematic reviews had already been published on this question.

2.2.2 Existing reviews

Preliminary searches for existing systematic reviews were conducted in the Cochrane Library, PsycINFO, MEDLINE, EMBASE, Web of Science and Google Scholar. English-language reviews appeared to be very limited in this area and only one review (with a juvenile sample) was deemed relevant to discuss. Van Wijk et al. (2006) reviewed literature between 1995-2005 and compared juvenile sexual offenders to juvenile offenders not of a sexual nature. The review was not primarily interested in PD, however personality traits was a variable included in the analysis.

Van Wijk et al.'s (2006) research question was clearly focused in terms of the population, intervention and outcomes. The review included studies with a clear comparison of male sexual offenders and non-sexual offenders; age of the participants was younger than 21 years and assessment done by means of standardised instruments, to allow for more reliable comparisons, and/or a systematic analysis of official (police, judicial, health care) records. The review was conducted on the grounds that there are few comparative studies of juvenile sexual and non-sexual offenders; that studies are difficult to compare because of methodological issues and that sexual offenders appeared to differ from non-sexual offenders on personality characteristics, problem behaviour, history of sexual abuse, nonsexual offending, and peer functioning.

Van Wijk et al. (2006) reported that 17 studies were identified for inclusion in their review. Inconsistent results were found for demographic factors, family functioning and background, antisocial attitudes, and intellectual and neurological functioning. Eight articles reported on personality characteristics and behavioural problems among the juveniles. Personality was measured according to traits, not PD. In five of those studies, the authors stated that sexual offenders were likely to have personality and behavioural problems. Three studies found that sexual offenders had fewer personality and behavioural problems than non-sexual offenders. In seven studies, no differences emerged between both groups with regard to personality and behavioural problems. The recommendation of the review was that future research should take into account the heterogeneity of groups of sexual and non-sexual offenders.

Whilst personality problems are not specifically PD, PD cannot be diagnosed in those under the age of 18 years. In addition, personality problems are considered the foundations of a PD diagnosis (DSM-IV, 1994). The current review will only include an adult population, therefore allowing PD to be considered. Van Wijk et al.'s (2006) findings in relation to personality characteristics and offence typologies were inconclusive.

Van Wijk et al. (2006) specified that instruments used in studies should be standardised to be included in their review. This criterion will be adhered to in the current review. The review only included those studies with a sample of at least 30 sexual offenders and 30 non-sexual offenders. This will not be adhered to in the inclusion criteria of the current systematic review due to concerns that valuable studies maybe excluded, however it will be a discussion point when evaluating included papers. The main limitation of the Van Wijk et al. (2006) review is that it does not report that studies were quality assessed leaving unanswered the question of how generalisable the findings were. The search was also conducted on only two databases. The use of more databases may improve future reviews. This current review will be improved by considering a greater number of potential sources of literature.

2.2.3 Aims and Objectives

This review primarily aimed to address the following questions:

a)   Is there an association between offence typologies and PD?

b)   Can certain PD categories or clusters predict the occurrence of specific offence typologies?

2.3 Method

2.3.1 Sources of Literature

Primary studies concerned with personality and its relationship to criminal behaviour were identified through the comprehensive search of online databases, reference lists from systematic reviews and meta-analyses, and hand searching of key journals. Papers published prior to 1993 were excluded because amendments were made to DSM-III and, in 1994 DSM-IV was published. Differences between the two manuals included changes to the Axis-II disorders that incorporate PDs. Therefore, it was considered that in order to make the review more reliable, only studies published since 1993 were included. The intention was that studies would be less heterogeneous and therefore more comparable.

2.3.2 Search Strategy

The databases included in the review were PsycINFO, OVID Medline and OVID EMBASE, (1993 to March 2011, completed on 31 March 2011) and ISI Web of Science (1993 to March 2011, completed on 2 April 2011). A search of the gateway Cochrane Library and of the database Google Scholar was also employed to search for existing reviews (all years, completed on 30 March 2011). The reference lists' of the relevant literature were hand searched for studies matching the current inclusion criteria. Key journals including The British Journal of Forensic Practice, Journal of Forensic Psychiatry and the British Journal of Psychiatry were hand searched for further relevant studies.

2.3.3 Study Selection

2.3.3.1 Inclusion Criteria and PICO

To be included in the review, studies must meet the following criteria:

Population: Adults; 18 years and over. Male.

Intervention: Measure of PD defined by the Millon Clinical Multiaxial Inventory–III (MCMI-III; Millon, Millon, & Davis, 1994), DSM-IV (APA, 1994), DSM-IV TR (APA, 2000) or ICD-10 (WHO, 1994) or equivalent such as the SCID-IV (Pfohl, Blum & Zimmerman, 1997).

Outcomes: Criminal offence.

Study type: Experimental/quasi-experimental, cohort, case control, cross-sectional or retrospective studies.

Exclusion: Case studies, narrative reviews, editorials commentaries and any other variation of an opinion paper; adolescent and women studies; non-English language papers.

Studies were included where a clear description of participants' offending was defined, offenders and controls had been assessed for PD and results were published, and a male, adult population had been used. The databases were searched electronically, this places limitation on the search strategy. Non- researched based publications (e.g., editorials and comments papers) were excluded from the search, but many were reviewed for background information and as sources of further references. A standardised search was applied to all electronic databases: however the relevant search tools were applied for each database leading to slight variation. Keywords, rather than mapping to subject, were utilised in order to reduce the number

of studies that may be lost due to incorrect coding. Whilst generating more hits and duplicates, this approach increased the likelihood of identifying all relevant papers and ensured consistency across databases. Search terms used related to population (e.g., adult AND male), intervention (e.g., PD), and outcome (e.g. offender, criminal). Boolean combination operators (AND, OR, NOT) were applied to the primary source citation results.

2.3.3.2 Search Terms

(Personality Disorder*) OR (Antisocial PD*) OR (Avoidant PD*) OR (Borderline PD*) OR (Dependent PD*) OR (Depressive PD*) OR (Histrionic PD*) OR (Narcissistic PD*) OR (Obsessive-Compulsive PD*) OR (Paranoid PD*) OR (Passive-aggressive PD*) OR (Sadomasochistic PD*) OR (Schizoid PD*) OR (Schizotypal PD*)

AND

(Offen*) OR (Crim*)

2.3.4 Study Selection

a) Quality assessment

After studies had been excluded because they did not meet the inclusion criteria, a checklist devised prior to the review assessed the quality of each study. The threshold criteria were;

    i.Clear and comprehensive definition of violent and / or sexual offending or criminal behaviour

    ii.Clear description of outcome measures (PD)

The key variables assessed by the quality assessment were:

    i.Aim of the study

    ii.Study design

    iii.Sample selection

    iv.Confounding factors

    v.Validity

Each study that met the threshold criteria was assessed on these variables using a quality assessment form (appendix 1). As no Random Control Trials were yielded from the search, only one quality assessment form was needed to assess the papers. A three point scale yes (2), no (0), and uncertain (1) was used. A total quality score was obtained by adding the scores of each variable and a quality percentage was calculated. Total score of uncertain items was also calculated to identify the quality of reporting of each study. A total maximum score of 56 points was possible. Studies that did not score above 60% were excluded from the current review. This cut off was chosen because from reviewing other papers, this appeared to be the preferred cut-off. In addition, it was considered that papers scoring over 60% were of sufficient quality to be included in the review, whilst those under the threshold were considered to be of poor quality and their results may have affected the reliability and validity of the review.

To ensure the assessment of quality was consistent, a primary reviewer (author) assessed all ten studies and a secondary reviewer assessed 3 of these studies. Differences between quality ratings were discussed and resolved between the reviewers, interrater reliability was .87.

b) Data extraction

Further relevant data was extracted from studies that met the quality criteria. To ensure the same data was extracted from each study a predefined pro-forma was used (appendix 2). Information extracted included details on aims of the study, sample characteristics, methodology, analyses and results. Any information that could not be collected from the studies was recorded as 'unknown'. Time constraints meant that authors could not be contacted for this information.

2.4 Results

Figure 1 illustrates the search results and number of publications reviewed. In total, 17,004 studies were reviewed. The initial electronic search yielded 16,995 hits and a further 11 studies were identified from reference lists. Firstly, seven publications that used the same data as other included studies were removed, and then 194 duplicate references that came up in more than one search engine. Prior to the application of the formal test of inclusion, the identified papers were manually sorted to eliminate the more obvious irrelevant studies, as judged from the title or abstract. If there was not enough information in the abstracts of studies then full text articles were accessed to assess whether they fit the criteria. Of the 16,801 papers remaining, 15,915 were excluded electronically due to not meeting the inclusion criteria. Following this, 886 papers were also reviewed electronically, however in more depth according to inclusion and exclusion criteria. A further 852 papers were excluded at this point and another 24 papers were excluded because they could not be accessed and no detailed information was available on them. All articles that met the inclusion criteria were either accessed via electronic databases or via the interloan system of the British

Results from Systematic Review
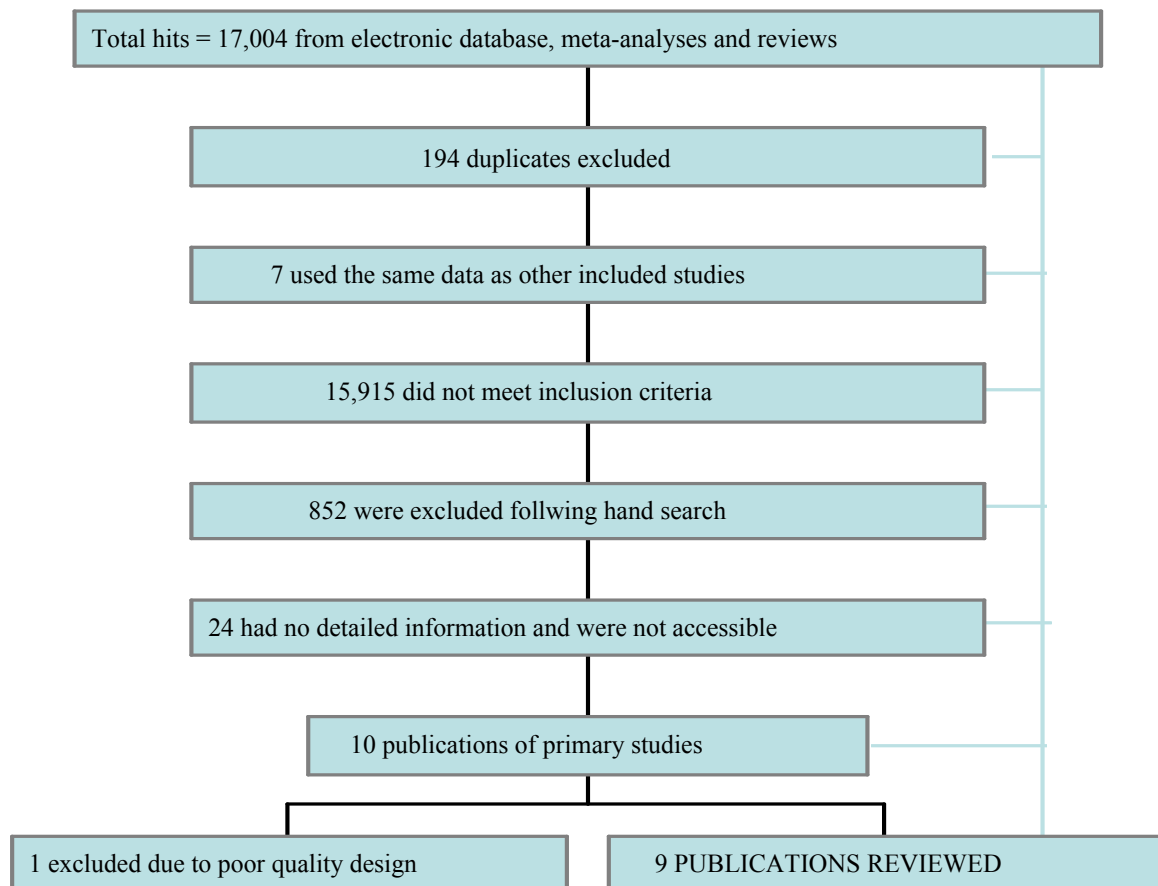
Figure 1.

Library. A total of 10 publications of primary studies were included for quality assessment. Of these 10 publications, one was excluded due to not reporting statistical analysis and therefore being considered poor quality. The remaining nine publications were reviewed.

2.4.1. Characteristics of Included Studies

Nine eligible articles were found for this review, all published between 1993 and March 2011. Table 2 details the characteristics of included studies. All studies were

Table 2. Characteristics of Included Studies

Authors (year)	Aim of study	Population and Study Design	Measures of Outcome	Statistical Analysis	Results
	Quality assessment (%) (no. of unclear)				
Ahlymer, Kleinsasser Stoner & Retzlaff (2003) USA	To elucidate differences on measures of psychopathy between sexual offenders and non sexual offenders. There was a particular interest in PD. 50/56 (89.3%) (2/28)	Recent admissions to Colorado Department of Corrections (CDOC). Rapists (n=223) Child molesters (n=472) Non sexual offences (n=7,226) Case control	Millon Clinical Multiaxial Inventory 3rd Edition (MCMI-III) was administered at intake for all admitted to CDOC. Had to meet disclosure and validity requirements MCMI scores of 75 and over to indicate probable presence of PD.	ANOVA, odds ratio and logistic regression	Sexual offenders v non-sexual offenders. Prevalence. High frequencies of avoidant (25%), narcissistic (21%), ASPD (29%) and negativistic (21%) were reported within the non-sexual offender group. High frequencies of avoidant (37%), ASPD (24%), negativistic (24%), depressive (27%) and dependent (26%) were reported within the sexual offender group. Odd ratio. Schzoid (1.61), avoidant (1.75), depressive (1.75), dependent (2.19), self-defeating (1.81) and schizotypal (2.24) PD increased likelihood of sexual offenders. Narcissistic (0.48), ASPD (0.79) and sadistic (0.74) PD increased likelihood of non-sexual offenders. Logistic regression. Dependent (Wald $\chi(1)$ = 11.715, exp(B) = .007, p<.001) and schizotypal (Wald $\chi(1)$ = 4.247, exp(B) = .005,p<.05) PD were associated with sexual offenders. Narcissistic (Wald $\chi(1)$ = 56.242, exp(B) =-.024,p<.001) and ASPD (Wald $\chi(1)$ = 27.690, exp(B) =-.014,p<.01) PD were associated with non-sexual offenders. Rapists v child molesters. Prevalence. Avoidant, depressive, ASPD and negativistic PD prevalent in over 20% of rapists. Dependent and dysthimia were yielded in over 20% of child molester cases. Odds ratio. Schizoid (1.64), avoidant (1.73), depressive (1.70), dependent (2.05) and self-defeating (1.74) PD increased likelihood of child molesters. No PD's were reported to increase the likelihood of rapists. Logistic regression. Dependent PD was associated with child molesters (Wald $\chi(1)$ = 4.034, exp(B) =.490, p<0.001). Odds ratio was 2.09.

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Study	Aim	Sample	Measure	Analysis	Findings
Aromaki, Lindman & Eriksson (2002) Finland	To establish if ASPD increases the likelihood to commit sexual offences 47/56 (83.9%) (3/28)	Recruited from prison & the general population. Rapist (n=10) Child molesters (n=10) Control (n=31) (recruited from the general population) Case control	Modified version of the Structured Interview for DSM-IV Personality (Pfohl et al., 1997).	Chi squared and ANOVA	Seven rapists and three child molesters met the criteria for ASP while none of the control subjects did. Significant differences were found between the groups ($\chi2$=19.77, d.f.2, p<.001). Rapists exhibited significantly more antisocial personality symptoms than either child molesters or control subjects, and child molesters more symptoms than the controls.
Bogaerts (2008) Belgium	(1) Do paraphilic child molesters differ to comparison sample on PD. (2) Do PD's predict paraphilia-related PD. (3) Do obsessive-compulsive & depressive PD significantly contribute to explain paraphilic child molestation. 42/56 (75%) (4/28)	Recruited from an educational training programme (as an alternative sanction to prison) and a prison. Paraphilic child molesters (n= 36). Matched comparison group of non-paraphilic child molesters (n= 34).	Dutch translation ADP-IV (Assessment of the DSM-IV PD)	Chi-squared, logistic regression and factor analysis	The groups differed significantly for BPD (p<.05), histrionic (p<.05), obsessive-compulsive (p<.01), and depressive (p<.05) PD. For each of these disorders, the scores of the paraphilic offender group were more elevated. The difference between both groups on the obsessive-compulsive PD was much stronger than the score differences for the other three PDs. A high score on the obsessive-compulsive subscale of the ADP-IV proves to be a strong predictor for affiliates to the paraphilic group (Wald $\chi(1)$ = 7.005, exp(B) =.081, p<0.01).
Craissati, Webb & Keen (2008) UK	To explore the relationship between key developmental variables in childhood, psychological and risk of convicted	Residents within the London Probation Area. N=241. 103 of participants	MCMI-III Presented scores both 75 and over and 85 and over. Case control	Chi-square, logistic regression	73% of the total sample presented with personality dysfunction and 37% reporting personality dysfunction sufficient to warrant possible diagnoses of PD. Few significant differences between child molesters and rapists were found, other than a greater percentage of schizoid (33% vs. 8%) and dependent (39% vs. 16%) personality traits in child molesters and ASPD traits in rapists (24% vs. 6%). Overall, child molesters were significantly more likely than rapists to report prominent dysfunctional personality traits

Author / Year / Country	Aim	Sample	Measure	Statistical test	Results
	contact sexual offenders. 50/56 (89.3%) (2/28)	agreed to complete the MCMI-III. Child molesters (n=78) Rapists (n= 25)			in two or more clusters (20% vs. 10%) ($p<.05$). Due to the small number of rapists who completed the MCMI-III, results were pooled for both sexual offenders, therefore regression analysis was not performed on these variables separately.
Dunsieth (2004) USA	To increase understanding of the relationships among sexual violence, paraphilia and mental illness. 37/56 (66.1%) (7/28)	Sex offenders referred from prison or probation to an 18 month residential sex offender treatment programme. N=113 Cross sectional / retrospective	Structured clinical interviews -II (SCID II)	Fisher exact test	Significantly higher rates of avoidant among offenders with paraphilias compared to those without paraphilia ($p=0.013$). No other significant results were found regarding PD.
Fazel, Hope, O'Donnell & Jacoby (2002) UK	To investigate the prevalence of psychiatric morbidity and PDs in elderly incarcerated sexual offenders compared with elderly non-sexual offenders. 40/56 (71.4%) (4/28)	Prisons within 100 miles of Oxford with 10 or more elderly offenders (aged 60 years and over). Ten sites were used in total. Elderly sexual-offenders (n=101) Elderly non-sexual offenders (n=102). Further categorized into 'aggressive'; rape and buggery and 'less-aggressive';	SCID-II Conducted by specialist registrar psychiatrist who had received training in the use of the diagnostic instruments administered	Chi squared and students t-test	There were no individuals in this study who were diagnosed with dependent, schizotypal, histrionic, narcissistic, or BPD. No significant differences were reported between sexual-offenders and non-sexual offenders according to personality diagnosis. However, sexual-offenders compared to nonsexual offenders were more often diagnosed with schizoid (n=10 and n=3 respectively), avoidant (n=11 and n=6 respectively), and obsessive-compulsive (n=10 and n=6 respectively) PD. Paranoid PD was diagnosed almost identically between sexual offenders (n=4) and non-sexual offenders (n=3). Sexual offenders (n=5) had fewer ASPD traits than non-sexual offenders (n=12). As the number of sexual offenders and non-sexual offenders with PDs was small, PD differences were further explored by comparing personality traits. Sexual offenders were significantly more likely to present with schizoid (t=5.06, $p<.0001$), obsessive-compulsive (t=2.42, $p<.02$) and avoidant (t=2.13, $p<.05$) traits than non sexual offenders. Non-sexual offenders were significantly more likely to present with ASPD traits

		indecent assault and gross indecency. Case control			(t=2.08, p<05) than sexual offenders. Offender were then categorised according to offence types, classified by 'aggressiveness of acts': 25 (43.1%) of those convicted of rape and buggery had a diagnosis of PD compared with 6 (15.8%) who were convicted of indecent assault and gross indecency (x2=7.83, df 1, p=0.05).
Harsch, Bergk, Steinert, Keller & Jockusch (2006) Germany	To compare psychiatric offenders with sexual and violent offenders in prison regarding psychopathologica and personality characteristics and psychosocial functioning. 40/56 (71.4%) (6/28)	Sample recruited from a Forensic Psychiatric Unit and Prison Forensic psychiatric sexual offenders (n=40), sexual offenders in prison (n=30) and violent offenders in prison (n=26). Cross-sectional	SCID I and II. Interviews by first author.	ANOVA and chi square	Chi-squared revealed significant differences between groups regarding total prevalence of PD ($\chi2 = 27.04$, df = 2, p = 0.0001). In the group of the forensic psychiatric sexual offenders, the percentage of PD was 85%. It was significantly higher than among the imprisoned sexual offenders ($\chi2 = 24.31$, df = 1, p = 0.0001) out of whom only 27% received the diagnosis of at least one PD and the violent offenders ($\chi2 = 15.36$, df = 1, p = 0.0001), out of whom 39% had a PD. Furthermore, highly significant group differences referring to the extent of comorbidity of PDs were shown (H = 27.35, df = 2, p = 0.0001). Significantly more forensic sexual offenders than imprisoned sexual offenders (H = 23.25, df = 1, p = 0.0001) and violent offenders (H = 13.77, df = 1, p = 0.0001) fulfilled the criteria of more than one PD. When considering clusters, cluster B most common across groups, in particular ASPD (which was more common in Forensic psychiatric sexual-offenders). Cluster C was found in Forensic psychiatric sexual-offenders but not other offender groups, no significance reported.
Leue, Borchard and Hoyer. (2004) Germany	(1) Which PDs are prevalent in mentally disordered, paraphilic and impulse control disordered sexual offenders. (2) Do paraphilic and impulse control disordered sexual offenders differ in PDs? (3) Which co-morbid diagnoses are relevant for effective treatment and relapse	Recruited from the State Forensic Hospital. Screened using DSM IV for the hands-on paraphilia's—paedophilia and sexual sadism—and impulse control disorder n.o.s. DSM IV 312.30). Structured clinical interviews were used for	German version of SCID, "Strukturierte Klinische Interview für DSM IV Achse II" (SKID II)	Chi square and Logistic regression	Cluster B and cluster C PDs were highly prevalent in the sample. 47% (n = 14) of the paraphiliacs and 40% (n = 10) of the impulse control disordered sexual offenders met the criteria for at least one cluster B PD. Both subgroups did not significantly differ in the prevalence of cluster B PDs. Regarding cluster C PDs both groups significantly differed: approximately twice as many paraphiliacs (n = 12) as impulse control disordered sexual offenders (n = 5) suffered from at least one cluster C PD (v(1) 2 = 6.94, p < 0.05). ASPD (n = 19), avoidant (n = 13) and BPD (n = 8) were the most common PDs in the present sample. Thus, the lifetime prevalence rates of these PDs were about 12 times higher in the examined sexual offenders compared to the population with a lifetime prevalence of 1–3%. However, paraphilic and impulse control disordered sexual offenders did not significantly differ

Study	Aims	Quality	Sample	Design	Assessment	Analysis	Results
	prevention in sexual offenders? 45/56 (80.4%) (7/28)		Sexual-offenders N= 55 Paraphiliacs (n=30) Impulse control disorder without paraphilia (n=25) Case control		diagnostic assessment.		on these disorders. Cluster A PDs were not present in the sample.
Labree, Nijman, van Marle & Rassin (2010)	1) To examine typical characteristics of arsonists. 2) To provide insight into the motives of the arson criminal. 46/56 (82.1%) (4/28)		Admissions to psychiatric hospital. Main offence of arson or repeat arson attempts (n=25). Control (n=50) (randomly selected non-arsonist, e.g., attempted murder / manslaughter, assault, sexual offenders, armed robbery, also admitted to the hospital.) Case control		DSM-IV diagnosis from pre-trial assessments.	Chi square	They study only reported on a diagnosis of any pd. PD was found in 17 out of 25 arsonists (68%) and in 26 out of 50 non-arsonists (52.0%). However, no significant differences were found between the groups for pd.

conducted in Western populations, including the USA and Europe. The sample size of the studies ranged from 51 to 7,921 participants (mean = 903, median = 96, range 7175). As eight out of the nine studies had sample size of approximately 200 participants or less, the mean number of participants was recalculated excluding the study with a sample population of over 7,000, as it was considered that this study would skew the results. The mean number of participants of eight studies was 113 (median = 85.5, range = 190).

Of those nine studies included in the review, seven were case control studies and the remaining two were cross-sectional. Three studies used retrospective data, which included PD diagnosis, to conduct their research. This data came from pre-trial psychiatric assessments ordered by the court or from general admission criteria to services. All included studies had a male only sample that was over the age of 18 years. However the grouping of offence typologies used in the studies was heterogeneous. Eight studies included sexual offenders in their comparison group, however these comparison groups were largely different. For example one study compared paraphilic and non-paraphilic offenders, another compared sexual offenders to violent offenders and another compared child molesters to rapists. Not one study was identical to another in choice of comparison groups.

2.4.1.1 Offence Grouping

Only one study included the general population as a control group (Aromaki et al., 2002), all other studies compared different offending groups organised according to offence type. The main focus of eight out of these nine studies was sexual offenders, the remaining study compared arsonist offenders to non-arsonist offenders (Labree et

al., 2010). One study did not differentiate between offences, however was interested in how elderly (60 years old and over) sexual offenders differed to elderly non-sexual offenders (Fazel et al., 2002). Altogether, six studies further categorised sexual offenders and two of these compared three groups, one classified for rapists, another for child molesters and the other was a control group of either non-sexual offenders (Ahlymer et al., 2003) or non-offenders (Aromaki et al., 2002). A third study was similar to these two, however did not include the control group (Craissati, Webb & Keen, 2008). The other three studies compared paraphilic offenders with non-paraphilic or impulse control disordered offenders without paraphilia (Bogearts, 2008; Dunsieth et al., 2004; Leue et al., 2004). However, Bogearts (2008) study was slightly different as he was concerned with comparing paraphilic child molesters to non-paraphilic child molesters, whereas Leue et al. (2004) and Dunsieth et al. (2004) specified the use of DSM-IV criteria for paraphilia, which does not have to involve a child. The remaining study (Harsch et al., 2006) compared mentally disordered sexual offenders residing in secure hospitals to both sexual and violent offenders in prison.

2.4.1.2 Diagnostic method for PD

Two of the studies used the MCMI-III to identify PD (Ahlymer et al, 2003; Craissati et al., 2008). One study reported findings in relation to both probable (>74) and definite (>84) presence of PD (Craissati et al., 2008), whilst the other study only used the probable cut-off indication (>74) when reporting findings (Ahlymer et al., 2003). The remaining studies used diagnostic criteria according to DSM-IV or DSM-IV TR, or measures aligned to DSM-IV diagnostic criteria such as the Structured Clinical Interview for DSM-IV Axis II (SCID-II, Pfohl et al., 1997) or country specific version of the SCID-II. No studies reported to have used ICD-10 criteria. Labree et al. (2010)

considered all PDs together, Aromaki et al. (2006) only considered ASPD and the remaining studies considered each PD in turn.

2.4.1.3. Statistical analysis

Seven of the nine studies used chi-squared analysis, some of which also used ANOVA's and performed logistic regression on the data. One study just used ANOVA's and logistic regression (Ahlymer et al., 2003) and another Fishers Exact (Dunsieth et al., 2004). All of the studies showed prevalence rates supporting a difference in PD according to offence type, however only eight studies reported statistical findings in support of the hypothesis.

2.4.2 Quality of Included Studies

Overall, the mean quality assessment score for all papers was 79% with 4.3 unclear items. For those eight papers that reported statistical findings in support of a difference between PDs and offending type, the mean quality assessment score was 78.6% with 4.3 unclear items. In the study that found no significant difference between groups, the quality assessment score was higher than the mean at 82.1% with 4 unclear items. Those studies reporting statistical analysis compared to the one that didn't, did not appear to have differed significantly on the quality of reporting.

2.4.3 Descriptive Data Synthesis

Due to the heterogeneous nature of the studies (such as differences in statistical analyses) it was not feasible to statistically combine the results of the included study in a meta-analysis. Egger, Schneider and Davey Smith (1998) argue that meta-analysis of observational epidemiological studies can produce misleading, summary

statistics. Qualitative analysis of studies was used to reach conclusions. Effect size was not calculated due to the nature of statistical analyses used. Therefore the results will be presented in text below. Each hypothesis will be considered in turn and attempts to make comparisons in results from similarities among studies will be completed. Table 3 displays the division of these publications by methodology into those that reported statistical findings in support of the association between personality traits and criminal or offending behaviour and those that did not. Only one study reported finding no statistical difference between offending groups.

This review primarily aimed to address the following two questions:

2.4.3.1 Hypothesis a) Is there an association between offence typologies and PD?

<u>Included Studies</u>.

Of the nine studies included in this review, eight studies reported a significant difference between offence typologies and PD. The study that reported no statistical difference between offending groups, compared arsonist offenders to non-arsonist offenders. All remaining studies compared sexual offenders and found statistical differences among groups. Table 2 (page 29) presented the studies included in the review with the aim of the study, participant details, methodological design, results and quality assessments scores. Each paper will be discussed in more detail below in relation to its support for the hypothesis.

Table 3. Division of Studies Supporting and Not Supporting the Hypothesis According to Methodology

Method of study	Supporting studies (n=8)	Non-supporting studies (n=1)
Case control	Ahlymer et al. (2003)	Labree et al. (2010)
	Aromaki et al. (2002)	
	Bogaerts (2008)	
	Craissati et al. (2008)	
	Fazel et al. (2002)	
	Leue et al. (2004)	
Cross sectional	Dunsieth (2004)	
	Harsch et al. (2006)	

Only one of the nine studies looked at the association between arsonists and PD (Labree et al., 2010). They compared those convicted of arsonists offences (n=25) to a group convicted of non-arsonists offences including attempted murder / manslaughter, assault, sexual offences and armed robbery (n=50). Participants were recruited from a psychiatric hospital in the Netherlands. DSM-IV diagnoses were established from a psychiatric pre-trial assessment. The study only reported on a diagnosis of any PD, which was found in 17 out of 25 arsonists (68%) and in 26 out of 50 non-arsonists (52%). However, chi-square analysis revealed no significant differences between the groups for PD.

The remaining eight papers all included sexual offenders in their sample. Ahlymer et al. (2003) intended to elucidate differences on measures of psychopathy between sexual offenders and non-sexual offenders, however there was a particular interest in PD. The sample contained recent admissions to Colorado Department of Corrections (CDOC), USA and included a large population groups of rapists (n=223), child molesters (n=472) and non-sexual offenders (n=7,226). The MCMI-III was used to

assess PD, with a cut-off score of 75 and over as indicative of a disorder. Prevalence rates were reported if the disorder was found in over 20% of the sample population. Avoidant, antisocial and negativistic PD were reported in 20% or more of both sexual and non-sexual offenders. When considering differences between groups, narcissistic PD was found in over 20% of the sample of non-sexual offenders but not in the sexual offender group, whilst depressive and dependent PD were found in over 20% of sexual offenders but not in the non-sexual offender group.

Odds ratio's to indicate which offence type increased the relative risk of meeting diagnosis for a PD according to the MCMI-III were reported. Schizoid (1.61), avoidant (1.75), depressive (1.75), dependent (2.19), self-defeating (1.81) and schizotypal (2.24) PD indicated sexual offenders. Narcissistic (0.48), ASPD (0.79) and sadistic (0.74) PD indicated non-sexual offenders. Logistic regression showed that dependent (Wald $\chi(1)$ = 11.715, exp(B) = .007, p<.001) and schizotypal (Wald $\chi(1)$ = 4.247, exp(B) = .005,p<.05) PD were associated with sexual offenders and narcissistic (Wald $\chi(1)$ = 56.242, exp(B) =-.024,p<.001) and ASPD (Wald $\chi(1)$ = 27.690, exp(B) =-.014,p<.01) PD with non-sexual offenders.

Ahlymer et al. (2003) conducted further comparisons between sexual offending groups. A group of rapists were compared to a group of child molesters. Avoidant, depressive, ASPD and negativistic PD were present in over 20% of rapists, whilst dependent and dysthymia were shown in over 20% of child molester cases. According to the odds ratio, schizoid (1.64), avoidant (1.73), depressive (1.70), dependent (2.05) and self-defeating (1.74) PD, indicated child molesters. Rapists were not indicated by any PDs. Logistic regression showed that the presence of dependent

PD occurred twice as often in child molesters (Wald $\chi(1)$) = 4.034, exp(B) =.490, p<0.001). Odds ratio was calculated as 2.09.

The aim of Aromaki et al. (2002) study was to explore the relationship of ASPD personality to the likelihood of committing sexual offences. A modified version of the SCID-II (Pfohl et al., 1997) was used. They found, when comparing rapists and molesters recruited from a prison population, and non-offenders recruited from the general population, groups significantly differed ($\chi 2$ = 19.77, p<= 0.001). ASPD was significantly more prevalent in rapists than child molesters and significantly more prevalent in child molesters than the general population.

Bogaerts (2008) aimed to compare the presence of PD between paraphiliac and non-paraphiliac child molesters and whether this difference can be used to predict paraphilia-related PD. Participants were selected from either an educational training program as an alternative sanction to prison (n=41) or a Belgian prison (n=29). Bogaerts (2008) found when considering dimensional scores that paraphilic offenders had significantly higher scores for BPD, histrionic, depressive and OCPD (p<.05). Logistic regression showed that a high score on the OCPD subscale proved to be a predictor of affiliates to the paraphilic group (Wald $\chi(1)$ = 7.005, exp(B) =.081, p<.01).

Craissati et al. (2008) explored the relationship between key developmental variables in childhood, psychological dysfunction in adulthood, and risk status of convicted contact sexual offenders. The initial sample was 241 participants who were resident within the London Probation Area, however only 103 participants agreed to complete

the MCMI-III (child molesters n=78 and rapists n=25). Craissati et al. (2008) reported that when comparing those who completed the MCMI-III with those that refused, groups did not differ on a range of background, offence-specific characteristics or risk variables. MCMI-III results were presented for scores of 75 and over and 85 and over. 73% of the total sample presented with dysfunction and 37% reported personality dysfunction sufficient to warrant possible diagnoses of PD (>74 score on MCMI-III). Few significant differences between child molesters and rapists were found, save for a greater preponderance of schizoid and dependent personality traits in child molesters and ASPD traits in rapists (p<.05) (MCMI-III score > 74). Overall, child molesters were significantly more likely than rapists to report prominent dysfunctional personality traits in two or more clusters (p< .05). Due to the small number of rapists who completed the MCMI-III, results were pooled for any type of sexual offenders; therefore regression analysis was not performed on these variables separately.

A retrospective study conducted by Dunsieth (2004) aimed to increase the understanding of the relationship among sexual violence, paraphilia and mental illness. The SCID-II was used as a diagnostic tool in a sample of 113 sexual offenders engaged in probation led residential treatment programme. A significantly higher rate of avoidant PD among offenders with paraphilia compared to those without paraphilia was found (p<.05). Although no other significant findings were reported, Dunsieth (2004) reported that paraphilic offenders had higher rates of paranoid, schizoid, BPD, histrionic, avoidant and dependent PD. Schizotypal and narcissistic was marginally more prevalent in paraphilic offenders and OCPD was found equally between groups. In addition, paraphilic offenders were more often found to have any PD (11.9%) than offenders without paraphilia (7.7%). ASPD was the only disorder found more

frequently in offenders without paraphilia. As these differences were not found to be significant, robust findings cannot be determined. Only avoidant, significantly more frequently diagnosed in offenders with paraphilia, can inform the hypothesis.

Fazel et al. (2002) compared the prevalence of PD between 203 elderly sexual offenders and elderly non-sexual offenders in UK prisons. The SCID-II was used to diagnose disorders, conducted by a specialist registrar psychiatrist. No significant differences, according to PD diagnosis, between sexual and non-sexual offenders were found. However, sexual-offenders compared to non-sexual offenders were more often diagnosed with schizoid (n=10 and n=3 respectively), avoidant (n=11 and n=6 respectively) and OCPD (n=10 and n=6 respectively). Paranoid PD was diagnosed almost identically between sexual offenders (n=4) and non-sexual offenders (n=3). Sexual offenders (n=5) had fewer ASPD traits than non-sexual offenders (n=12). Paranoid, although present, was not found to significantly differ between the groups. As significant differences were not found, further analysis was conducted by comparing personality traits. The largest differences were found in the presence of more schizoid traits (t=5.06, p<.0001) and OCPD traits (t=2.42, p<.02) in sexual offenders. Smaller differences were found in sexual offenders possessing more avoidant traits (t=2.13, p<.05) and fewer ASPD traits (t=2.08, p<.05).

Comparison groups were then categorised according to offence types, classified by what Fazel et al. (2002) term as 'aggressiveness of acts'. Rape and buggery were classified as more aggressive than indecent assault and gross indecency. Of those convicted of rape and buggery, 25 (43.1%) had a diagnosis of PD compared with 6 (15.8%) who were convicted of indecent assault and gross indecency (x2=7.83, df(1),

p=0.05). Although, Fazel et al. (2002) did not report on individual disorders, only general disorders, there is an advantage to this with the anticipated change to PD in the awaited publication of DSM-V that will be discussed later. There were no individuals in this study who were diagnosed with dependent, schizotypal, histrionic, narcissistic, or BPD.

Leue et al. (2004) compared paraphilic sexual offenders with impulse control disordered sexual offenders without paraphilia, who were detained within a secure hospital as an alternative to prison (n=55). The German version of the SCID-II was used. ASPD, avoidant and BPD were the most common; however groups did not significantly differ with regard to these PDs. Subgroups did not significantly differ on cluster A or cluster B PD, however almost twice as many paraphiliac as impulse control disordered offenders suffered from at least one Cluster C PD (p<.05).

Harsch et al. (2006) aimed to assess the Axis I and II disorders (DSM-IV) in sexual offenders in forensic psychiatric secure units (n=40) compared with sexual offenders (n=30) and violent offenders (n=26) in prison. This was the only study that specifically compared sexual offenders, to violent offenders. Significant difference between groups regarding total prevalence of a PD was found (p<.001); 85% of forensic psychiatric sexual offenders, 27% of sexual offenders in prison and 39% of violent offenders were diagnosed with at least one PD. Significant differences regarding specific PD's between groups were not found. However, the authors reported that Cluster B was more common across groups, in particular ASPD that was most common in forensic psychiatric sexual offenders. Cluster C PDs were found in forensic psychiatric sexual offenders but not in other offender groups. Although PD

was diagnosed significantly more often in forensic psychiatric patients, Harsch et al. (2006) do not report on specific disorders. In addition, the offence groups used were not comparable with other studies, creating further difficulty in trying to draw conclusive findings from the results.

Comparison of Included Studies According to Offence Group

The findings for the studies comparing the prevalence of PD among sexual offender groups present varied findings. Of those studies which considered paraphilia, (Bogearts, 2008; Dunsieth, 2004; Leue et al., 2004), there was consistency in that disorders were more prevalent in paraphilic offenders than the control group. In addition, there was consistency in those disorders that were found to significantly differ between groups. Leue et al. (2004) found cluster C disorders to be significantly more prevalent in paraphilic offenders. Dunsieth (2004) reported avoidant to be significantly more common in the group of paraphilic offenders, which is included in the Cluster C disorders. Of the four disorders Bogearts (2008) found to be significantly higher in paraphilic offenders, only one of these was a cluster C disorder, OCPD. Although there appear similarities, these do not appear to be robust findings, as the other three disorders Bogearts (2008) reported significant findings for, were not included among the cluster C disorders.

Studies by Ahlymer et al. (2003), Aromaki et al. (2002) and Craissati et al. (2008) compared rapists to child molesters. Aromaki et al. (2002) and Craissati et al. (2008) both reported ASPD to be more prevalent in rapists than child molesters; however Ahlymer et al. (2003) did not support this. Despite this, Ahlymer et al. (2003) and Criassati et al. (2008) both reported dependent as significantly more common in child

molesters compared to rapists. The implications of these findings will be further discussed below.

<u>Comparison of Included Studies According to PD</u>

Table 4 includes the PD variables and the study and offence group that reported significant findings for each variable. Cluster A PD and paranoid were not reported by any study to have demonstrated significant differences in offending groups. Narcissistic and ASPD were reported by studies to include non-sexual offenders, significantly more often than sexual offenders. The remaining PD were reported by studies to include sexual offenders more frequently than control groups. Avoidant, OCPD, depressive, BPD and schizoid PD were both endorsed by more than one study to include sexual offenders more frequently when compared to a comparison group.

If paraphilic child molesters were considered to have more deviant cognitive distortions or sources of arousal than non-paraphilic child molesters, followed by rapists and then offences such as indecent assault, a pattern in the result was shown. When offending groups were compared, the more deviant the sexual distortion or source of arousal, the more likely they were to have met diagnosis for PD. For example, paraphilic sexual offenders were more frequently diagnosed with avoidant than non-paraphilic sexual offenders (Dunsieth, 2004). Paraphilic child molesters were more frequently diagnosed with BPD, histrionic, OCPD and depressive PD than non-paraphilic child molesters (Bogaerts, 2008). Similarly, child molesters were more often diagnosed with any PD (Craissati et al., 2008) and schizoid, avoidant, dependent

Table 4. Comparison of Findings Between PD and Offence Types

Type of PD	Offence Type Associated With (control sample)	Study
Any	Child molesters (Rapists)	Craissati et al. (2008)
	Rape and Buggery (Indecent Assault and Gross Indecency)	Fazel et al. (2002)
	Mentally disordered sexual offenders (non-mentally disordered sexual & violent offenders)	Harsch et al. (2006)
	Arsonists (non-arsonists)	Labree et al. (2010)
Cluster A	No significant results	
Paranoid	No significant results	
Schizoid	Sexual (non-sexual) and Child Molesters (Rapists)	Ahlymer et al. (2003)
	Sexual (non-sexual)*	Fazel et al. (2002)
Schizotypal	Sexual (non-sexual)	Ahlymer et al. (2003)
Cluster B	Mentally disordered sexual offenders (non-mentally disordered sexual & violent offenders)*	Harsch et al. (2006)
Antisocial	Non-Sexual (sexual)	Ahlymer et al. (2003)
	Rapists (child molesters and general population)	Aromaki et al. (2002)
	Non-Sexual (sexual)*	Fazel et al. (2002)
	Sexual (no comparison group)	Leue et al. (2004)
Borderline	Paraphilic child molesters (non-paraphilic child molesters)	Bogaerts (2008)
	Sexual (no comparison group)	Leue et al. (2004)
Histrionic	Paraphilic child molesters (non-paraphilic child molesters)	Bogaerts (2008)
Narcissistic	Non-Sexual (sexual)	Ahlymer et al. (2003)
Cluster C	Paraphilic (Impulse control)	Leue et al. (2004)
Avoidant	Sexual (non-sexual) and Child Molesters (rapists)	Ahlymer et al. (2003)
	Paraphilic (non-paraphilic)	Dunsieth (2004)
	Sexual (non-sexual)*	Fazel et al. (2002)
	Sexual (no comparison group)	Leue et al. (2004)
Dependent	Sexual (non-sexual) and Child Molesters (rapists)	Ahlymer et al. (2003)
Obsessive-compulsive	Paraphilic child molesters (non-paraphilic child molesters)	Bogaerts (2008)
	Sexual (non-sexual)*	Fazel et al. (2002)
Depressive	Sexual (non-sexual) and Child Molesters (rapists)	Ahlymer et al. (2003)
	Paraphilic child molesters (non-paraphilic child molesters)	Bogaerts (2008)

Note. * Considered personality traits not disorder, as sample size was small.

and depressive PD (Ahlymer et al., 2003) than rapists. In addition, Harsch et al. (2006) found mentally disorder sexual offenders to be significantly more frequently diagnosed with any PD and cluster B disorders, compared to both non-mentally disordered sexual and violent offenders. 2.4.3.2. Hypothesis b) Can offence typologies be predicted from PD categories?

The main findings of the review suggest that there is an association between offence typologies and the presence of specific PDs. Although individual studies reported regression analysis and predictive findings, due to the heterogeneity of methodologies used by included studies it cannot be determined from this review whether specific PDs can be linked to specific offence types. Therefore a predictive model can not be explored from this review nor can potential risks associated with offending or prognosis for effective treatment be determined.

2.5 Discussion

2.5.1 Interpretation of the findings

Primarily, this review was conducted to systematically evaluate the research base to investigate a relationship between PD and offence typologies. What this review has shown is the lack of comparative research in this field and the inability to draw robust conclusions on the association between PD and offence typologies. Vast differences in study populations of the included publications caused the most difficulty when interpreting the findings, therefore conclusions drawn from this review should be

interpreted with caution. Rates of PD ranged from zero for a control group recruited from the general population (Aromaki et al., 2002) through to 85% for mentally-disordered sexual offenders (Harsch et al., 2006).

Of studies included in the review, only one looked at arsonist offenders, limiting the comparison potential to other studies. Whilst performing the literature search, other studies looking at arsonist offenders and PD were found, however they were excluded due to not meeting PICO requirements, mainly because they were conducted prior to the year 1993. Labree et al. (2010) revealed that PD was more prevalent within their sample of arsonist offenders, however they did not report on difference between specific disorders nor were statistical findings reported. As specific disorders are not reported, it creates further difficulty in comparison with other studies. The study by Fazel et al. (2002) also did not report personality categories. Whether the authors intended to only report overall PD or clusters, or if they choose to do this because there was little difference in groups when disorders were categorically presented is not known. If this was the case, it may highlight a general bias in published research, which will be discussed in the limitation section.

The arsonist offender group within Labree et al.'s (2010) study only contained 25 participants; this may explain the lack of significant statistical findings. In addition, Fazel et al.'s (2002) study revealed that when participants were allocated to groups according to PD and offence type, this resulted in small sample size of groups (n=3). With reference to arsonist studies, it is recommended more comparable studies in this

area are conducted with larger samples. Notwithstanding this, there is an advantage to reporting overall personality disturbance. PD diagnosis is criticised for heterogeneity in diagnostic criteria between disorders. Those studies reporting overall disturbance are at an advantage and may retain relevancy when DSM-V (APA) is introduced.

Except for the study by Labree et al. (2010), all remaining studies considered sexual offenders. Sample sizes used within these papers varied from over 7,000 participants in one study (Ahlymer et al., 2003) to comparison groups with as few as ten participants (Aromaki et al., 2002). Studies utilising small sample sizes may account for few significant findings and therefore should be considered with caution. Case studies were excluded from the review and so were studies with less than ten participants within groups. However, it is questioned whether even ten participants is still too low to produce robust findings, particularly when this sample is further spilt according to PD types, creating even smaller comparison groups. Future reviews with a similar intention should consider this, alongside the possibility that it may exclude relevant studies. Ahlymer et al. (2003) have demonstrated that studies in this area can be conducted with a large sample of 7,000 participants.

Participants included in a study conducted by Leue et al. (2004), consisted of paraphilic and impulse control sexual-offenders. Leue et al. (2004) were concerned with comparing the groups according to PD diagnosis. The findings of these studies were based on small sample sizes. When Leue et al. (2004) reported that twice as many paraphilic than impulse control disordered sexual offenders suffered from at

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least one cluster C PD, there were only 12 participants in the paraphilic group and five in the impulse control disordered group. As mentioned above, Fazel et al. (2002) had less than five participants in some of his comparison groups. These studies evident the need for large comparison groups, especially if studies intend to produce robust results, capable of informing practice.

Diagnostic criteria and measures used to identify PD did vary among studies. Two studies used the MCMI-III to indicate PD. Ahlymer et al. (2003) used a cut-off score of over 74 to indicate a disorder, which indicates a probable diagnosis. However it is questioned whether over 84 would be a more reliable cut-off, which indicates a definite diagnosis, possibly more comparable with DSM (APA) or ICD (WHO) diagnosis. The MCMI-III was also used in Craissati et al's. (2008) study, however they reported results for both scores over 74 and 84 allowing more confident comparison between studies. Although stringent exclusion criteria were applied so that confidence in presence of PD could be assumed, too stringent criteria may have excluded relevant and useful studies. In addition, the included studies pan across many countries. Although the use of the DSM or ICD was one of the inclusion criteria, the question still remains how reliable and valid these diagnostic manuals are in other countries. Construct, methodological and item bias have been reported to occur in cross-cultural measurement (Van der Vijer & Poortinga, 1997), Church (2001) suggests a need for cultural specific personality traits to be considered in assessment of personality across cultures.

Selection and recruitment of participants differed between studies. Aromaki et al., (2002) were the only study to compare a prison population of sexual offenders to the general population. As the aim was the association between PD and committing sexual offences as opposed to any offence, perhaps the study should have had additional non-sexual offending groups, because as it stands the difference between the sexual offending groups and the control group could be due to offending in general, not necessarily sexually offending. As lower prevalence of PD is expected in the general population, this may further confound the results. Further to this, due to the potential implications resulting from disclosing a non-convicted sexual offence, the absence of sexual offending in the comparison group cannot be assumed. Robust conclusions regarding the relationship between ASPD and sexual offending can therefore not be drawn.

Studies by Bogearts (2008) and Dunsieth (2004) recruited participants from a residential sexual offender treatment programme referred from prison or probation, thus creating a biased sample as Bogaerts (2008) reported that the participants included in his study had chosen the treatment programme as opposed to prison. Research identifying BPD individuals as 'treatment seeking' (Coid, 2003) may further explain the high prevalence of BPD participants in Bogaerts (2008) sample. It is not known if this was the case with Dunsieth (2004), however the difference between those in such a sanction and prison population should be further explored to determine the applicability of these findings. In one of the included studies, participants were recruited either by their therapists or via an information sheet placed on a notice board in a German prison (Harsch et al., 2006). Firstly, it is questionable whether all

prisoners in the German penal system have a therapist, and secondly what is the difference between prisoners that do have a therapist and those that do not. A further critical point is that forensic patients and offenders in general tend to withhold relevant information. On the other hand, information for DSM and ICD is often collected from additional sources such as therapists and file information, minimising the reporting bias of participants.

The study by Harsch et al. (2006) was conducted in Germany. It used a cross-sectional design however; the percentage of the population included in each offending group differed. For example 85% of sexual offenders in forensic psychiatric services in Germany were included in the study, however only 9% of sexual offenders and 4% of violent offenders in prison were included. Ethical guidelines prevented the authors obtaining socio-demographic or criminological data in order to evaluate non-participating sexual offenders and violent offenders. For these reasons sampling bias may have occurred.

Ahlymer et al. (2003) initially found dependent PD to be significantly associated with sexual offenders, however further analysis found it was actually significant with child molesters, not rapists. The sample size of the child molester group was almost twice as high as rapists, possibly attributing to this significant finding. This highlights problems with other studies that may report significant findings with a large variety of offence type within groups. Pure offence groups perhaps need to be established in future research, however the difficulty in this is acknowledged.

However the main difficulty that arises when comparing these studies is the diversity of offence typologies used to define groups between the available studies. Of further concern was whether PD was looked at as a whole, according to clusters or categorically. Due to the limitations outlined above it can be seen the difficulty presented when trying to draw robust conclusions from the review. This review primarily aimed to address the following questions:

a) Is there an association between offence typologies and PD?

Of the nine studies included in this review, one reported no significant difference between offending groups on the presence of a specific PDs however, eight studies did report a significant difference when considering these factors, although not for all disorders. In general, sexual offending groups, and perhaps more deviant forms of sexual offending, were significantly more likely to have a diagnosis of PD than their comparison group which included, less deviant sexual offenders, violent offenders or a non-offending population. This was also true for specific PDs, with two studies reporting it to be the case for schizoid, obsessive-compulsive, depressive and BPD, and four studies reporting it for avoidant. Only ASPD and narcissistic PD were more often found in violent, or less sexually deviant offenders than sexual or more deviant sexual offenders. However, there is overlap between the diagnosis of ASPD and offending behaviour. The criteria for diagnosis of ASPD includes engagement in criminal activity, which may explain the significant findings between these variables.

b) Can offence typologies be predicted from PD categories?

Due to the heterogeneity of methodology used with included studies it cannot be determined from this review whether specific PDs can be linked to specific offence types. Therefore the findings from this review are unable to predict offence typologies from PD diagnosis.

The main findings of the review suggest that there is an association between offence typologies and the presence of PDs. However, statistical analysis and robust conclusions of the findings could not be determined due to the heterogeneity of the included studies. The limitations of this review and the included studies will be discussed further.

2.5.2 Limitations

Systematic reviews are known to be subject to biases; one of the more apparent biases is publication bias. Publication bias is when studies with positive results are more likely to be published. Further biases are present in the selection of studies; studies included in the review were chosen after meeting specific, predefined, inclusion criteria. Firstly, the search was confined to English language publications, which would have limited the sources included. Secondly, studies of females or those under the age of 18 years old as participants were excluded creating further exclusion biases.

Only studies conducted after 1993 were included. This criterion was used due to the unmanageable number of studies yielded in the initial search and the limited resources to be able to scope this number of studies. The year 1993 was selected, as this was when the most recent version of DSM was published. The intention was to ensure that chosen studies were more comparable according to PD and changes were made to the previous version of DSM. In terms of study type, no randomised controlled studies were included in the review. Studies of this design were not excluded from the review but none were identified in the search phase. This is likely to be due to the methodological implications surrounding RCTs. There are extensive ethical concerns of using such a methodology in this context as it would be considered unethical to withhold treatment from one group that is shown to be effective in such a population (Marshall & Marshall, 2007). Further concerns surround biases, that those showing motivation or characteristics shown to be a positive variable in effective treatment, maybe more likely to be assigned by the researcher or clinician to the intervention which has shown to be more effective. Most of the studies in this review used retrospective data and participants who were consecutively admitted to a unit or the courts.

Stringent criteria were used to define PD; a measure of PD defined by the DSM-IV (APA, 1994), ICD-10 (WHO, 1994) or equivalent criteria was used. Studies using the MCMI-III for indication of PD were also used. The DSM-IV, ICD-10 or equivalent criterion was used, as these are the two major diagnostic classification systems, recognised in the field, that describe PDs. These diagnostic guidelines were not used by all of the studies yielded from the search, some of which used alternative tools

such as the MMPI-III. The MMPI-III does not identify all PDs listed in DSM-IV or ICD-10. Due to this, it was considered that all DSM-IV and ICD-10 identified PDs would not be fairly represented and bias for those disorders included in the MMPI-III may occur. Studies utilising the MMPI (all versions) were excluded from the review. Consequentially this may have resulted in some highly relevant studies being excluded and limited the findings.

Further to this, the setting and context in which PD diagnosis was made is likely to have differed. Tools such as the MCMI-III are comprised of a list of questions where the participant answers true or false. It is hoped that during such an assessment, the participant will have an informed understanding of the purpose of the assessment. This may be less clear to participants if they are being assessed by a clinician for ICD or DSM criteria, who may only be asking a series of unstructured questions based on diagnostic criteria. However, informed diagnosis from ICD or DSM will use collateral information and additional sources on which to base a diagnosis. This is not general procedure with administration of the MCMI-III. Further to that, tools such as the MCMI-III, as mentioned previously, are not able to provide a diagnosis. This should only be done in the context of a clinical interview. This limitation of the MCMI-III brings further weakness to the review. In addition, only one study reported excluding invalid MCMI-III profiles from analysis so it is unknown whether the other study included invalid profiles in their analysis. In light of the study population and the implications an assessment of PD may have on access to interventions, it is possible that a level of dishonesty or exaggeration may have occurred. Individuals with PD, as with other disorders, may find difficulty in practicing introspection. The participants

may therefore not have been fully aware of their symptoms of PDs and may have therefore, been unable to provide a truly reflective account of their experiences. This may have resulted in an unintentional underreporting of symptoms. Alternatively, symptoms and experiences may have been exaggerated by some, for example as a cry for help or to manipulate their allocation to a certain intervention. In addition, reporting bias among disorders may occur. For example those with negativistic or depressive disorders maybe more likely to over report pathology. However, those with narcissistic or histrionic PD may be less reflective of negative character traits. These possibilities are worthy of consideration when interpreting such findings and applying recommendations.

The strength of a systematic, rather than narrative review should be noted here. Systematic reviews are considered more reliable as the basis of how studies were selected and excluded is clear. All the studies that met the inclusion criteria were subject to an assessment of quality to ensure the included studies were of a high quality. A systematic approach is therefore less susceptible to other forms of bias, including too much weight being given to findings of studies that have poor methodological design. Consistency of the assessment of quality was enhanced with an additional assessor reviewing a sample of the included studies. Quality threshold for included studies prevents studies of low quality being included, however this does create a bias of its own as excluded studies may have valuable results but due to poor write up or methodology are not included in the review. Despite this, excluding studies with a low quality scores is understood to be the safest method to ensure valid and reliable results.

There was wide variation in study populations, methodology and results between the different studies included in the review. A lack of comparable data meant that meaningful meta-analysis could not be conducted; this limits the extent to which robust conclusions can be drawn from the current review. In addition due to the variations in statistical analyses between studies, it was not possible to calculate effect sizes. Doing so would enable comparisons of specific PD and association to offence typologies.

2.6 Conclusions and Recommendations

What is apparent from the current review is the lack of comparable literature in the area of interest. The review has highlighted the lack of research in this area and that the research that is conducted in this area is both homogenous (i.e., usually sexual offending) and heterogeneous (i.e., different types of sexual offending groups); largely due to the diverse populations and incomparable offending and control groups. Recommendations on future research based on the findings of the review and the limitations of included studies would be that further research needs to be completed. Large sample sizes, including a number of different offence typologies and control groups which include offenders, non-offenders; imprisoned and non-imprisoned individuals; and both PD and non-PD participants should be included in comparison groups. The study sample, as outlined, should aim to minimise the limitations mentioned above. It is suggested that at present male adult offenders should be the focus of research. Firstly, this is because knowledge of adult male offending typologies and association with PD is still inconclusive. Secondly, they present as the largest population in the penal system. Finally, this population should not be pooled

with adolescents or females, as prevalence, causes and implications of PD may be different for these groups.

What is apparent is that there are significant differences between offence typologies and PD. However, whether the differences found are conclusive, applicable to wider populations and robust enough to form a predictive model need further evidence. It appears that most research seems to have been focused on sexual offenders, specifically paraphilic offenders, however different PD's were found to be significantly elevated in studies not concerned with paraphilia.

The findings imply that PD is prevalent in offending population and that there are often significant differences found between groups, categorised according to offence typology. The question regarding the impact PD has on offending behaviour and treatment of such individuals remains within the field of research and those practicing within the criminal justice field.

Rationale for Chapter 3.

Chapter 2 has identified that PD is found within offending populations and that there are reports of significant associations found between the two variables. However, due to methodological differences between studies and the classification of offending groups, comparison between studies is enormously difficult. In terms of understanding the functional link between PD and offending population with a view to establishing intervention needs, a focus should move away from offence typologies and consider how intervention can be shown to be effective with such a population. Chapter 3 attempts to address some of these issues.

Chapter 3

Research Study

Contributing Factors to Successful Intervention of PD in a

Therapeutic Community Prison

3.1. Abstract

Background: Psychosocial factors, PD traits and treatment outcome of 676 offenders were explored in a democratic therapeutic community (TC) prison. The intention was to first explore the prevalence of PD traits within the population. Following this, identification of predictive factors for successful intervention from psychosocial factors and PD traits, and the mediating effects of PD traits were considered.

Methods: PD traits were identified by the PDQ-R (Hyler, 1987) and PDQ-4 (Hyler, 1994). Treatment outcome was measured according to clinically significant change in psychometric scores, measuring personality, hostility and self-esteem at pre and post intervention. Intervention was treatment within a prison based TC. Initial analysis utilised chi square and correlation. A mediational analysis was begun, but the assumptions were not met.

Results: PD traits were found to be highly prevalent in the sample (86.2%). Significant findings were reported between psychosocial factors and PD traits. Regression analysis found previous convictions, unemployment and substance misuse to significantly predict ASPD traits. Being a child victim of physical and sexual abuse, a reported suicide attempt and engagement in deliberate self-injury significantly predicted BPD traits. Clinically significant changes in psychometric scores between diagnoses of PD cluster traits were found. These findings in fact showed a reduction in disordered traits, which would be considered characteristic of specific PD clusters. Within cluster A disorder traits, clinically significant reductions were found for psychoticism and extra punitive hostility. Within cluster B traits, clinically significant reductions were found for psychoticism, criminality, impulsivity and extra punitive hostility. Finally, within cluster C traits, a clinically significant increase on extraversion and self-esteem, and a reduction in intropunitive hostility,

was found.

Conclusions: Overall findings demonstrated the success a TC has in reducing PD traits, across clusters and specific to diagnostic criteria for PD categories. However, the association between psychosocial factors and therapeutic outcome, and PD and therapeutic outcome, was not robust enough to be able to demonstrate mediation between these variables. The limitations of the study and future direction for research are discussed.

3.2 Introduction

3.2.1 Psychosocial Factors and PD

Certain factors, in particular adverse childhood experiences, have been found to contribute to the development of PD (Lieb et al., 2004; Luntz & Widom, 1994; Paris, 1996). However, there is fewer consensus surrounding the association between specific factors and the development of specific disorders. BPD appears to have been widely researched within this area. Within a sample of 180 outpatients diagnosed with one of more PD, high rates of early and lifetime trauma were reported. Patients with BPD reported significantly higher rates of being a victim of physical abuse (52.8%) than those without BPD (34.3%, p<.02). No difference in being a victim of sexual abuse or other trauma was reported. Significantly higher rates of being a victim of physical abuse were also reported by those with paranoid PD (54%) compared to those without paranoid PD (38%, p<.02, Golier et al., 2003).

3.2.1.1 Psychosocial Factors and BPD

A number of psychosocial factors such as childhood victimisation and parental separation have been reported to be significantly associated with BPD (Bandelow et al., 2005; Zanarini et al., 1997). Golier et al. (2003) reported that among the PDs, BPD is the most frequently studied in regard to early adverse experiences.

Bandelow et al. (2005) reported that patients with BPD (n=66) have reported significantly higher rates of traumatic childhood experiences, including sexual abuse, violence, separation from parents, childhood illness, than non BPD participants (n=109, p<.0001). 24.2% of BPD patients experienced foster care and 48.5% were

mostly reared by other persons (e.g., aunt, grandparents) compared with 0% and 4.6% of controls. Similarly, 54.6% of BPD patients reported violence committed by a family member and 60.3% were victim to sexual abuse, compared to 2.8% and 2.3% in the control group. In addition BPD individuals reported significantly higher rates of psychiatric disorders in their families (72.2% and 12.9 respectively). Familial neurotic spectrum disorders (OR = 22.0, p=.0056), childhood sexual abuse (OR = 17.63, p<.0001), separation from parents (OR = 3.52, p=.0042) and unfavorable parental rearing styles (OR = 1.12, p=.014) all significantly predict the presence of BPD. Violence in the family, birth risk factors and alcoholic parents were not predictive of BPD.

Zanarini et al. (1997) found in a sample of 358 patients with BPD that over 90% reported having been abused and neglected before the age of 18 years old. When BPD patients were compared to a sample of patients with other PDs, those with BPD were significantly more likely to report having been abused (91.3% and 73.4% respectively) and neglected (92.2% and 75.2% respectively) than the comparison group (p=.00001). They were also significantly more likely to report having been separated from a caretaker, having inconsistent care or care which did not meet their needs or adequately protect them. When all significant risk factors were considered together, four were found to be significant predictors of a BPD: female gender (OR = 1.4, p=.01), sexual abuse by a male noncaretaker (OR = 1.7, p=.0001), emotional denial by a male caretaker (OR = 1.5, p=.001), and inconsistent treatment by a female caretaker (OR=1.3, p=.04). Johnson et al. (1999) considered the association between child maltreatment and PD in a community sample of 639 families. They found that elevated symptoms of BPD was associated with sexual abuse and childhood neglect

(p<.005) after controlling for confounding variables.

3.2.1.2 Psychosocial Factors and Other PDs

Studies have also considered other PDs than just BPD when considering psychosocial factors. In particular, ASPD has also been the focus of much research. Luntz and Widom (1994) conducted a longitudinal study, and found childhood victimization (including neglect and abuse) to be a significant predictor both of the number of lifetime symptoms of APSD and a diagnosis of ASPD.

Links between particular adverse childhood experiences and other PD's have also been reported. Johnson et al. (1999) considered the association between child maltreatment and PD in a community sample of 639 families. Firstly, they found physical abuse was significantly associated with elevated symptoms of any cluster A PD (p<.005), ASPD (p<.05) and depressive PD (p<.01) after controlling for confounding variables, such as parental psychiatric disorders and difficult child temperament. Sexual abuse was associated with elevated symptom levels of histrionic, depressive and total PDs (p<.005) after controlling for confounding variables. Childhood neglect was associated with elevated symptom levels of ASPD (p<.05), avoidant (p<.05), dependent (p<.01), narcissistic (p<.005), passive-aggressive (p<.005), schizotypal (p<.005), and total PDs (p<.005) after controlling for confounding variables. When childhood abuse and neglect were considered together, only paranoid, schizoid, avoidant and obsessive compulsive were not found to be significantly elevated in those cases (p>.05). However, when the effects of co-occurring PDs were controlled statistically, only cluster B (OR = 7.94) and DSM-IV appendix B (depressive and passive aggressive, OR = 4.43) PDs were independently

associated with childhood abuse or neglect. However, specific PD diagnoses were low, only 86 participants (13.5%) met criteria for PD. It is recommended that this study be replicated in a larger sample size. Individual adverse experiences have shown to be linked to PD, however the accumulation of these factors and the development of PD have also been studied.

3.2.1.3 Recurrent Victimisation

Severity of adverse childhood experiences and its relationship to PD, specifically BPD, have also been considered with this population. Severity of child sexual abuse, measured by age when person was a victim of abuse, frequency, duration, closeness of relationship to perpetrator, number of perpetrators, nature of abuse and whether force of violence was used were considered in relation to BPD (Zanarini et al., 2002). Severity of childhood sexual abuse and neglect was found to be significantly related to overall severity of BPD psychopathology and the severity of psychosocial impairment (p<.001). Clausen and Crittenden (1991) presented findings that suggest that many children are not victim to isolated traumatising events but are often subjected to on going or multiple victimizations.

Indeed, Turner, Finklehor and Ormrod (2010) purported that victimized children, particularly those experiencing child maltreatment or family violence, also appear to be at greater risk of subsequent victimisations. Several studies have found, for example, that both witnessing domestic violence and being the direct victim of child abuse results in more severe outcome than if just one of these incidents occurred (Kernic et al., 2003). However, others have reported that they found no worse effects for those that witness domestic violence to those that witnessed both domestic

violence and physical abuse (Kitzmann et al., 2003). Victimisation, when not occurring as a single entity, can be experienced in different forms. Hamilton, Falshaw and Browne (2002) defined types of single and recurrent victimisation (Table 5).

This concept of revictimisation has been developed further and proposes that the concern should not only be to an individual's exposure to maltreatment or abuse, but should include other forms of victimisation, such as bullying and victim to property offences (Finklehor, Ormrod & Turner, 2007; Turner et al., 2010). Finklehor et al. (2007) terms this polyvictimisation, and regards that this is more fundamental to understanding trauma symptomology than single incidents of victimisation. Turner et al. (2010) proposed that past studies might have exaggerated the contribution of a single type of victimisation to subsequent problems. They found that children who suffer one type of victimisation are also likely to experience other types. Almost 40% of all children who experienced any maltreatment episode in their lifetime had experienced 11 or more additional victimisation types. In addition, of those exposed to sexual victimisation, 50% had also been victims of other maltreatment.

Literature advocates that revictimisation is common in those experiencing one type of victimisation (Clausen & Crittenden, 1991; Finklehor et al., 2007; Turner et al., 2010). However, the exact implications of repeat victimisation in different outcomes are not so widely published. What impact revictimisation may have on the development of a PD does not appear to have been researched as so far. Zanarini et al. (2002) appear to have started the process in researching PD in this area, however comparable research in this area is recommended. Research into this area may aid

Table 5. Definitions for Single and Recurrent Victimisation (Hamilton et al., 2002)

Definitions for Single and Recurrent Maltreatment	
Single victimisation	One incident of maltreatment, one perpetrator
Multiple victimisation	One incident of maltreatment, more than one perpetrator
Repeat victimisation	More than one incident with same perpetrator or perpatrators at time one and time two
Revictimisation	More than one incident with different perpetrators at time one and time two

understanding of the development of PDs. What is not yet clear with such a population is whether certain adverse experiences or an accumulation of experiences are more contributory to the development of a PD. This will be considered in the following research.

Since much childhood victimisation occurs in the context of multiproblem homes, there may be other significant factors contributing to the development of these disorders. Separating potential risk factors and controlling for these would demonstrate the potential effects of other psychosocial variables (such as poverty, parental attachment and rearing styles, or other inadequate social and family functioning; Widom, 1999). Greater understanding of the implications of experiencing multiple forms and / or occurrence of adverse experiences may aid not only our understanding of the development of PD but also future implications. For example, there may be evidence to suggest that it is not the incident itself that may contribute to the development of a disorder, but an accumulation of an individual's experiences, the impact this has on their schemas of the world, subsequent functioning in response to these and the implementation of protective strategies. An individual's functioning or protective strategies may be understood in their personality functioning, evident in those with maladjusted styles, through a diagnosis of PD. It is evident from literature presented in the previous chapter and introduction, that

prevalence of PD is high within offending populations. This suggests that this group of individuals, and subsequently society, would highly benefit from such individuals receiving intervention. Devising the intervention around the factors that contribute to their offending and PD is a suggested approach.

3.2.2 Risk Factors and Offending Behaviour

Background factors linked to PD have been discussed. A magnitude of research exists in background factors linked to offending behaviour, often termed risk factors (Farrington & Coid, 2003; Farrington, Coid & Murray, 2009; Stouthamer-Loeber et al., 1993). Risk factors are considered to be events that occur earlier, which predict a later outcome occurring (Loeber, 1990).

Widom (1991) proposed that experiencing childhood maltreatment and/ or witnessing violence as a child may be the primary cause of delinquency in adolescence. However, she qualified this by stating that this figure was still low, with about one out of every six individuals going on to abuse others. The link between childhood victimisation or exposure to adverse childhood experiences and offending behaviour has also been published (Hamilton, et al., 2002; Maschi, 2006; Maxfield & Widom, 1996; Widom & White, 1997). Childhood victims of abuse or neglect were more likely than controls to have a juvenile or adult arrest for any non-traffic offence (49% vs 38%) and for a violent crime (18% vs 14%). Victims of physical abuse and neglected children were more likely to be arrested for violence (OR= 1.9 & 1.6, respectively), after controlling for age, race, and sex (Maxfield & Widom, 1996). A longditudinal cohort sample of 1190 participants found that abused and neglected females, not males, were at a significantly higher risk of being arrested for violent

crimes, compared to those not abused. However, both males and females have higher rates of non-violent arrests (Widom & White, 1997).

In a sample of 79 adolescents resident within a secure institution in England, over half (54.5%) had suffered both repeat and revictimisation. Only 20.8% had not experienced maltreatment. With regard to offending behaviour, of those who had committed a violent and / or sexual crime, 74% had experienced some form of revictimisation, compared to 33% of those who committed nonviolent offences (Hamilton et al., 2002). In addition, although the number of participants who had been maltreated outside of the family home was small (n=8), all of these individuals had committed a violent and / or sexual act. A higher percentage of those who experienced both repeat and revictimisation perpetrated both within and outside of the family had committed a violent and / or sexual offence (95%) compared to the intrafamilial repeat and revictimisation group (85%), the repeat victimisation group (63%) and the control group who experienced no abuse (69%). Due to the small sample size of comparison groups, statistical significance could not be calculated. Hamilton et al. (2002) propose that further research be conducted in this area. Maschi (2006) found in a sample of 2065 male youths that cumulative trauma was a significant predictor of property offending ($p < .01$) and violent offending ($p < .01$). Cumulative trauma was measured by exposure to violence and stressful life events, the presence of each incidents was added to calculate a total trauma score. It is worthy of note that the majority of maltreated children do not become delinquent (O'Connell-Higgins, 1994) and it is therefore, likely that other factors mediate this interaction.

Farrington and Coid (2003) report that ASPD syndrome has an early onset with signs of conduct disorder appearing in truancy, stealing and classroom disciplinary from a young age. The Cambridge Study in Delinquent Development (CSDD) (Farrington, 2003) used longitudinal prospective methods to understand the development of offending and ASPD behaviour in 411 males. Farrington (2003) reported that 63% of boys with convicted fathers were themselves convicted of a criminal offence (OR = 3.9).

Hawkins et al. (2000) conducted a meta-analysis of risk and protective factors for offending. The aim of the review was to identify and propose intervention strategies and policy improvements to address the identified risk factors for juvenile offending, with a view to reducing re-offending and adult offending. They found that general antisocial behaviour was more closely associated with younger delinquents, whilst peer related factors were more predictive of older delinquents. Hawkins et al. (2000) reported the following factors present between the ages of 10 - 16 to be predicitive of later offending; antisocial behaviour, early violence, gang membership, male, drug selling, peer delinquency, hyperactivity, risk taking, neighbourhood adults involved in crime, community disorganisation, availability of drugs, poor family management, school transitions, low academic performance, residential mobility, sibling delinquency and family conflict. Comparison between risk factors for offending behaviour and PD can be drawn.

3.2.3 Risk factors for both PD and Offending Behaviour

The literature suggests that similar background or risk factors have been reported for both PD and offending behaviour (Maschi, 2006; Maxfield & Widom, 1996). Coid

(2003) constructed a longitudinal developmental model for high risk offenders with PD, as previously discussed in the introduction (see table 1). The risk factors included in this model, such as family and neighbourhood factors, physical and / or sexual abuse and conduct disorder have been reported as predictive factors for both the presence of PD and criminal behaviour. Whether knowledge of these risk factors can inform treatment has not been reported.

3.2.4 Treatment of PD Offenders

In terms of treatment, typically social learning and cognitive-behavioural models have been the focus of interventions with forensic populations. However, evidence suggests democratic therapeutic communities (TC) demonstrate a reduction in symptoms of PD in disturbed populations, assessed by behavioural and symptomatic improvements (Alwin et al., 2006; Dolan & Coid, 1993; Warren et al., 2006). There are two main approaches to therapeutic communities. The hierarchical model, where residents work their way up a hierarchical structure to increasing positions of responsibility, is mainly utilised in the USA with substance abusers (Rawlings, 1998). However a democratic model is more popular within the UK (Wexler, 1997). This democratic approach to an individual's care originated in the UK during World War II (Jones, 1952). The model promotes the equality of power where both staff and residents have equal control, through a vote system, of the running of the community. HMP Grendon was the first prison within the UK to operate according to this model. Nowadays other establishments have adopted the 'Grendon' approach, although they remain the minority in the prison system.

Prison based TCs are structured on the Henderson Hospital model where a 'culture of

enquiry' is nurtured (Warren et al., 2003). The idea is that it is not the organisational structure, but the culture that creates a TC (Warren et al., 2003). Therapy is usually facilitated in groups incorporating both prisoners and staff. The philosophy that Grendon was built on was one where all the resources (i.e., staff, prisoners and relations) have a collective purpose to promote therapy (Gray, 1973). A hierarchical structure between prisoners and staff is 'flattened' (Warren et al., 2003), however strong staff leadership is needed to provide a safe therapeutic environment (Lees & Kennard, 1999). Communalism, democratic decision-making and permissiveness to feel safe to act in accord with feelings without social inhibitions, all foster such an environment. Prisoners are encouraged to be responsible and participation in the treatment of peers is facilitated. Schimmel (1997) surmised the creation of a TC environment as one where central therapeutic factors, combining both community and complex interpersonal processes, are exposed and subjected to detailed analysis by community members. These processes and accountability are considered a primary medium of treatment (Schimmel, 1997).

3.2.4.1 HMP Grendon

Grendon prison is a therapeutic prison, which holds adult male prisoners in England and Wales. It houses five therapeutic wings, with approximately 40 prisoners on each wing and an assessment unit holding about 20 men. Currently applicants must have at least 18 months left to serve of their sentence, not be taking psychotropic medication, be of at least average intelligence, motivated to change their behaviour and agree to not engage in violence, sexual relationships or take drugs or alcohol.

The structure of the intervention at HMP Grendon involves prisoners attending a group each morning. Three mornings a week, they attend their 'small groups' of around eight prisoners, with a therapist drawn from the staff group, including prison officers, probation officers, psychologists or psychotherapists. These groups are 'rolling' as such. Prisoners are expected to stay within these groups for at least 18 months. They aim to be stable groups, which encourage genuine disclosure and psychodynamic working through. Sessions within the small groups generally consist of historical exploration, the sharing and catharsis of trauma, interpretation and challenge of unconscious drives and the recognition of future encounters of previous, adverse situations. The work within the groups is reinforced within the day-to-day encounters within a TC (Shine, 2000).

The large group meetings, held twice weekly, serve the democratic function of the community. Within these meetings, community matters are discussed and issues such as a prisoner's request to engage in additional therapeutic activities or work are debated and voted upon. Additional therapeutic activities include art therapy and psycho-drama. Afternoons are spent engaging in either these activities, work as prison cleaners or exercising in the gymnasium (Morris, 2000). There are no one-to-one sessions or manualised programmes run at HMP Grendon.

Grendon has the lowest rate of prison offending, as measured by Govenors reports (Cullen, 1994); however this is not a reflection of a less disturbed population. Shine and Newton (2000) reported the mean PCL-r scores for men at Grendon is 24, slightly higher than the mean score for the dispersal prison population. In addition, 26% of the population scores above the threshold for psychopathy according to a score of 30 on

the PCL-r (Hobson & Shine, 1998). However, this is the US criteria and is usually lower in the UK (Hare, 2003). Further to this, Birtchnell and Shine (2000) found that 88% of the population meets criteria for a diagnosis of PD according to the Personality Disorder Questionnaire Version 4 (PDQ4; Hyler, 1994). Despite this, the success of the TC approach to treating not only offenders but also severely disordered offenders has been widely published (Newton, 2000; Shine, 2000; Warren et al., 2003). However, previous research appears to study PD as one entity, without considering specific categories or clusters as this study intends.

3.2.5 Effectiveness of Therapeutic Communities

A large number of studies in the effectiveness of a TC prison have been conducted at Grendon. Reconviction studies have been carried out alongside research looking at a reduction in psychological or pathological traits and treatment process (Shine, 2000). Reconviction studies have shown mixed results in the past (Gunn & Robertson, 1982), however more recent studies (Marshall, 1997; Newton, 2000; Taylor, 2000) present lower reconviction rates at Grendon than the general prison population. Newton (2000) reported a decrease in reconviction rates of 21%. However authors such as Genders and Players (1995) and Gunn and Robertson (1982) have found the treatment effect at Grendon to be more than something that can be defined and measured by official statistics, such as attitudes and psychiatric states. This will be discussed further later in the introduction

3.2.5.1 Reconviction Studies

In 1982, Robertson and Gunn reported reconviction rates of 70% for Grendon prisoners at two-year follow-up, although they acknowledged the small sample size

(n=61). More recent publications have shown greater promise to the effects of Grendon. Cullen (1992) reported the reconviction rates for Grendon residents also at a two-year follow-up were 33%, compared to 44% for the general adult male prison population (N=214). Thornton et al. (1996) found that within a sample of sexual offenders at Grendon, those residents with at least two previous convictions for sexual offences demonstrated significantly lower reconviction rates at four year follow up than a matched group on the waiting list for the TC. However, significant differences were not found for first time offenders or men with only one previous conviction.

Marshall (1997) conducted a four-year follow up of a group of inmates admitted to Grendon. The group was compared to a control group of prisoners in the general prison population and a group that was on the waiting list to attend Grendon, but was never admitted. Marshall (1997) reported that the admitted group had significantly lower reoffending rates than the waiting list group ($p<0.1$), although, this significance was slightly reduced once the difference in offending history between the groups had been controlled for. Further to this, it was found that Grendon may have a specific impact on older violent or repeat sexual offenders. It may be that age is related to responsivity, or repeat offenders may have been in and out of prison on a number of occasions, and be more responsive to treatment through motivation to avoid custody. Whether a TC treatment model is more effective for such populations and why this may be the case would need further exploration.

Taylor (2000) conducted a follow up of Marshall's (1997) study at seven years. The effects reported by Marshall (1997) were generally repeated, however the rates of reoffending were not significant ($p>0.1$). Rate of reconviction for specific types of

violent offences did show a significant difference according to length of stay (p<0.1).

Again Taylor (2000) notes the small numbers within comparison groups that were as low as 12 participants in some groups. It was also reported that offenders with two or more convictions were more likely to reoffend if they were in the waiting list group than those admitted to Grendon, again suggesting the TC may be more effective for repeat offenders. Alternatively, this group of offenders maybe older and consequently more receptive to treatment. Further to these findings, treatment effect was found for those who stayed at least 18 months, life sentence prisoners and repeat sexual offenders (Taylor, 2000). These findings suggest there maybe a minimal or optimal period for effective intervention in a TC.

3.2.5.2 Length of Time in Treatment

Taylor (2000) reported effectiveness in relation to length of stay; this area has been considered by other authors. Back in 1973, Gray found that in a sample of 263 residents who remained at Grendon for at least 13 months, reconviction rates were significantly reduced (39.5%) in comparison to those that left before 13 months (68.4%). Similarly, Cullen (1992) found that residents who stayed for 18 months or longer at Grendon had significantly lower reconviction rates (33%) than those who left before this time period (44%). Genders and Player (1995) identified a 'therapeutic career' model where, through the course of therapy, prisoners move through motivation, recognition, understanding, insight and testing stages. They found that as length of time in treatment increased, so did progression through these stages (Genders & Player, 1995). Only 19% of men who left Grendon before 12 months reached the final stages of the 'therapeutic career' model. For those who spent between 12 and 18 months at Grendon, 33% reached this final stage, however if they

stayed over 18 months, 88% reached the final stage. These findings give further evidence to the success of Grendon and the therapeutic processes, which appear to emerge and strengthen with time engaged in therapy.

Reconviction studies and tangible measurements, such as length of time in therapy, have shown promising results. However, more subtle shifts, observed and measured in pathological traits, attitudes and behaviours are considered more substantive evidence of effectiveness of a TC (Gunn & Robertson, 1982). It has been argued that reconviction rates are a poor outcome measure because positive change cannot be fully understood in terms of reduced re-offending (Rawlings, 1999). Although reduced re-offending is an important aim for intervention with a forensic population, it should be considered whether a reduction in criminal thinking and negative attitudes (whilst not necessarily preventing someone from committing any offence), may reduce the severity of any reoffending and potential harm to others. Further to this, Prochaska, DiClemente and Norcross (1992) stated that outcome studies have taught us relatively little about how people change. Newton (1998) compared pre and post psychometric measures for Grendon residents. She reported significant differences in mean scores for Eysenck Personality Questionnaire (EPQ) and Hostility Direction Hostility Questionnaire (HDHQ), with the exception of the psychoticism scale; the change was greatest for those men who remained in therapy for over one year. This research, however, did not consider the impact that PD may have on outcome data.

3.2.5.3 Psychotherapeutic Effectiveness

Howells et al. (2007) have questioned if it is the therapeutic intervention that is responsible for outcome effectiveness, or if the non-specific aspects of a treatment

(such as structure, specification of targets for change and forming a therapeutic relationship) are responsible. Gunn, Robertson, Dell and Way (1978) evaluated the psychotherapeutic effect of Grendon. Of a sample of 107 men, they reported a highly significant reduction in neurotic symptoms (such as anxiety and depression) and a reduction in hostility directed towards others, in particular towards authority. Further to this, increases in self-confidence, self-esteem and social interaction were found. A later study by Gunn and Robertson (1982) measured psychological, psychiatric and attitudinal changes of prisoners at Grendon. Firstly, rates of violence, measured through self-reports of engaging in fights in prison were at rates of 5% at Grendon, compared with 26% in another mainstream prison. Minnesota Multiphasic Personality Inventory (MMPI; Butcher et al., 1989) scales related to neuroticism, extraversion and sociability were used to measure psychological changes. Significant reductions were reported in neuroticism (mean difference = 11.625) and significant increases were reported for extraversion and sociability scales (mean difference = 7.1). A standard psychiatric interview was conducted and demonstrated that prisoners reported an overall significant reduction in symptomology when they left Grendon (mean overall rating = 1.45), in comparison to when they arrived (mean overall rating = 2.0).

Newton (1998) also found differences in psychometric measures pre and post treatment at Grendon. Significant mean reductions in scores upon discharge from Grendon were seen for psychoticism (1.9), neuroticism (3.8), criminality (3.2) and total hostility (6.6). Significant increases in scores were reported for extraversion (2.5). Newton (1998) reported that for men leaving Grendon, their mean EPQ and HDHQ score upon discharge was significantly closer to normal than baseline scores. Genders and Player (1995) conducted a qualitative study with similar intentions and

found that in a sample of 102 residents, significant changes in attitudes and behaviour were self-reported. These changes were considered to be in response to the therapeutic regime, in particular, the merits of group work. Specific offenders groups have also been explored at Grendon. Thornton, Mann, Bowers et al. (1996) reported that sexual offenders who spent longer within the TC demonstrated more appropriate attitudes to women and children, than those who spent less time. Some offenders who engaged in a CBT programme for sexual offending alongside a dedicated TC approach, made significantly more progress in terms of minimisation, relapse prevention skills and rape myths that those not engaged in the CBT programme. Although these findings are supportive and may seem biased in favour of the effectiveness of Grendon as a TC, systematic reviews conducted in response to the DSPD agenda have also shown support for this establishment, as outlined below.

3.2.5.4 Systematic Reviews

In 1993, the Home Office commissioned a review of the treatment of psychopathic and ASPD (Dolan & Coid, 1993). Findings were limited due to both the poor methodology and the heterogeneity of included studies. However, it concluded that TC treatment had shown the most promising results of any type of treatment when measured by behaviour and psychological changes, reduction in violent incidents and improvement in life history (recidivism and rehospitalisation rates). These findings were presented as tentative and highlighted the need for further research in this field (Warren et al., 2003).

Lees, Manning et al. (1999) conducted a meta-analysis of TC treatment. This was a comprehensive review including 294 studies, however only 29 studies were included

in the fixed effect meta-analysis, 8 of which were RCTS. The findings largely concluded that TCs were beneficial, even when conservative criteria (such as reconviction rates) were used for measurement as opposed to psychological improvement. However, the effects in specific patient groups were not clear from the review due to heterogeneity in study methodology and inclusion criteria. Although the review included offending and PD, the presence of both was not necessary for inclusion within the review. Therefore, robust conclusions cannot be drawn from this review for the current topic. This review called for more complex, cross-institutional and RCT studies. With the formation of DSPD sites, and the pressure to measure the effectiveness of such intervention, in 2001 the Home Office commissioned a further review (Warren et al., 2003). In total, 117 studies were reviewed that were published between 1993 and 2001. Findings concurred with Dolan and Coid (1993) that few methodologically robust studies of TC have existed and no RCT's were identified for inclusion within the review. However, based on published research of the effectiveness of treatment for PD offender, it was identified that TCs produced the most hopeful findings (Warren et al., 2003). Evidence for effectiveness in producing long-term symptomatic and behavioural improvement, and lower reconviction, as cited in the research above (Genders & Players, 1995; Newton, 1998; Taylor, 2000), were found.

3.2.6 Conclusions

The literature appears to show evidence for the effectiveness of TC's in treating a PD population; however they remain a minority within the penal system in England and Wales. Despite the low number of available TC's, PD offenders are certainly not in a minority (Birtchnell & Shine, 2000).

However, the majority of literature appears to have looked at PD overall. There appears to be a gap in the literature as to whether specific PDs or clusters benefit more from a TC environment. Alwin et al. (2006) propose the need for research into the effectiveness of treatment dependent on the type of PD diagnosed and the environment needed to sustain any effects. Alwin et al. (2006) go on to state that treatment should take account of the risk level of offenders, the factors associated with their offending, and the types of interventions to which they are likely to be responsive. In addition, greater understanding of the development of specific disorders, or specific risk factors which contribute to the development of such disorders, and those which are more targeted or effectively treated in a TC would substantially assist in rehabilitation of such a population.

Shuker and Newton (2008) propose that a greater understanding of PD as a factor in offending behavior and treatment targets is needed. It is understood that HMP Grendon has a high population of PD offenders (Birtchnell & Shine, 2000), which would make it a highly suitable sample for studying the interaction between PD, psychosocial factors and treatment outcome within a therapeutic community. Further to this, the mediating effects that PD may have on targeting specific factors, such as childhood trauma and / or victimisation, and the effectiveness of intervention, appears to be an area that would benefit from greater understanding. These are factors that will be explored in the current research. Such knowledge intends to not only identify factors related to therapeutic effectiveness, but also expand understanding of who can be most effectively treated in such an environment and possibly the reasons why.

Therefore, this research aims to consider the associations between psychosocial factors from childhood and adulthood, the influence of PD traits and prognosis for effective treatment.

The specific research questions are:

1.   Is there an association between psychosocial factors and PD, indicated by the PDQ?

2.   Is there an association between PD, indicated by the PDQ and therapeutic outcome; defined by a change in psychometric scores post intervention?

3.   Is there an association between psychosocial factors and therapeutic outcome; defined by a change in psychometric scores post intervention?

4.   Does PD, indicated by the PDQ mediate the association between psychosocial factors and therapeutic outcome within this environment (Figure 2)?

Mediational Diagram Illustrating Personality Disorders Mediating a Relationship between Psychosocial Factors and Therapeutic Outcome.
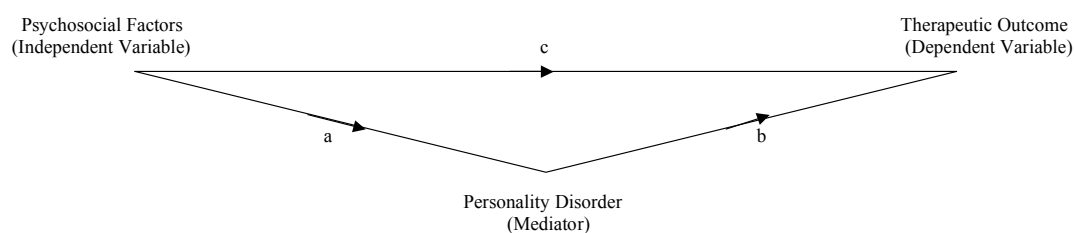
Figure 2.

3.3 METHOD

3.3.1 Sample

This was a retrospective study and utilized data stored on a database within HMP Grendon. Data was collated on 676 male prisoners who had completed either the Personality Diagnostic Questionnaire Revised (PDQR) (Hyler, 1987) or the Personality Diagnostic Questionnaire -Version 4 (PDQ4) (Hyler, 1994). The PDQ data was collected during the assessment stage at Grendon, which was administered as part of the admission battery of psychometric tests during the period 1996 - 2002.

The sample was aged between 21 and 66 years old (mean = 33.3 years, SD = 7.8), ethnicity and nationality were not recorded for all participants. The majority of the sample (67.8%) was serving determinate sentences (a fixed sentence length set by the court) and the remaining were serving life sentences (a minimum period is spent in custody before release on licence, which lasts for the offenders' life). The majority of the sample (65.7%) was serving a sentence for a violent offence (including murder or manslaughter), 22% were serving a sentence for a sexual offence (including sexual homicide or sexual violence) and only 11.1% were serving a sentence for a non-sexual and non-violent offence. These offences were crimes such as drug and dishonesty offences.

3.3.2 Procedure

On arrival at HMP Grendon, prisoners undergo a 3 month assessment period, after which those considered suitable would be allocated a place on a therapeutic wing and those that were considered unsuitable, returned to the prison they came from. The

assessment period includes a semi-structured interview obtaining psychosocial information and psychometric assessment. Post intervention psychometrics are also collected to measure treatment outcome. All this data is entered on to a database, held within the prison. For the purpose of this study, psychsocial factors will be used as terminology for these factors. This is because not all background factors that were looked at in this research have necessarily been deemed a risk factor to the outcome of both offending behaviour and PD. However, the risk factors presented in Coid's (2003) longitudinal developmental model for PD in high-risk offenders will be included where possible.

This was a retrospective study, therefore information was collated from a database and assessment files held within the Research and Development Unit at Grendon. An anonymous database was created with data on the 676 prisoners who met the inclusion criteria including, demographic information, psychosocial factors, offending history, PDQ results and psychometric scores. The inclusion criteria for prisoners' data to be used within the study were a) those prisoners who have completed the PDQR or PDQ4 as part of a psychometric test battery on arrival and b) complete scores have been recorded on the database. It is acknowledged that the PDQ4 is a revised version of the PDQR and therefore, the two versions do differ. However it is considered that both measures are comparable in terms of identification of DSM PD coding and are pooled within a sample. A further evaluation of these two measures is presented in Chapter 3.

No research or identification numbers were entered onto the database to ensure anonymity. Total scores for the PDQ-R and PDQ-4 were available as well as data indicating whether a potential diagnosis for each of the PDs defined by the DSM-IV was present or not. During

analysis, PD traits indicated by the PDQ were compared with psychosocial factors and therapeutic outcome. Therapeutic outcome was defined by a clinically significant change in psychometric scores post intervention. When prisoners leave Grendon, the wing therapist comments on whether each prisoner met their therapeutic targets, set at the commencement of treatment. This information was explored within analysis, however only objective measures, such as psychometric data was reported on. As research in the domain of forensic psychology developed, and with it interest in new psychosocial factors, the information that was collected from arrivals at Grendon grew. Together with incomplete assessment interviews and refusal to provide all information, there is 'missing' data within the sample (excluding the PDQ data).

3.3.3 Measures

<u>a) PD Questionnaire (Hyler, 1987; 1994)</u>

PD traits were identified by the PDQR and PDQ-4 (Hyler, 1987; 1994) that are designed to assess the ten PDs of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders Version III-Revised and IV (DSM-III-R and DSM-IV) (APA,1987; 1994). From here on, PDQ will refer to both the PDQR (Hyler, 1987) and PDQ-4 (Hyler, 1994). Table 6 provides a description of the measures used within the research.

b) Outcome Measures

The psychometric measures used for comparison were Eysenck Personality Questionnaire (EPQ, Eysenck & Eysenck, 1975), Hostility and Directed Hostility Questionnaire (HDHQ, Caine, Foulds & Hope, 1967) and the Culture Free Self Esteem Inventory (CFSEI, Battle, 1992) were compared (Table 6). These are all self-

report measures, administered to prisoners at HMP Grendon by a member of the Research and Development Department. A description of variables used for analysis are included in Table 7. These variables selected as outcome measures are related to expected treatment targets.

3.3.4 Analysis

Both categorical and continuous data was utilised within the research. The first stage of analysis involved basic data analysis including frequencies and associations. Chi square analysis was performed on the categorical data and correlational analysis on the continuous data, bonferroni adjustments were performed. Variables found to be significantly associated formed the predictive model. Linear and logistic regression were used, as appropriate.

The second stage of analysis explored the mediational cycle between offence typologies, PD traits and therapeutic outcome (see Figue 2, page 63). The four-step mediational procedure advocated by Baron and Kenny (1986) and Kenny, Kashy, and Bolger (1998) was used to explore the cycle between offence categories, PDs and therapeutic outcome. The first stage of mediational analysis required that therapeutic outcome was regressed onto psychosocial factors, however significant associations were not found between these two variables. Consequently, the mediational analysis was not possible.

Table 6. Description of Measures

Psychometric	Description
Personality Disorder Questionnaire (Hyler, 1987; 1994)	These tools provide an assessment of personality disorders based on DSM-III and DSM-IV: (A) Paranoid; (B) Borderline; (C) Anti-social; (D) Avoidant; (E) Dependent; (F) Obsessive compulsive; (G) Schizoid; (H) Schizotypal; (I) Histrionic; (J) Narcissistic; (K) Negativistic; (L) Depressive. The PDQ is a self-administered, True/False screening questionnaire where participants are given descriptions of abnormal behaviors (e.g., "I am often on guard of being taken advantage of") and asked to indicate whether each description is "generally true" or "generally false". Two scores are calculated: - (1) The Total PDQ score: this is determined by summing the pathological responses. This was utilised as a continuous variable to indicate the degree of overall disordered personality (high score = disordered). (2) Specific DSM-IV Personality Disorder Diagnoses. A true score on each item of the specific disorder is recorded, if the threshold is reached or exceeded (e.g., as a score of four or more paranoid items would indicate) the diagnosis is recorded. In DSM-IV, multiple diagnoses are allowed.
Culture Free Self Esteem Inventory (CFSEI) (Battle, 1992)	This inventory is designed to measure an individual's perception of their own self-worth. A total score is derived from three components that measure 1) General self-esteem, 2) Social self-esteem and 3) Personal self-esteem (high score = high self-esteem).
Hostility and Directed Hostility Questionnaire (HDHQ) (Caine, Foulds and Hope, 1967)	The HDHQ is based on the concept that hostility can either be directed toward the self (intrapunitiveness) or outward against other people of objects (extrapunitiveness). The HDHQ measures both a general factor of hostility with various manifestations and a bipolar factor where self-directed hostility and other directed hostility oppose one another. The measure consists of five scales. Split under the concept of extrapunitive (acting out hostility, criticism of others and projected hostility) and intrapunitive hostility (self-criticism and guilt). A total score is derived from summing these items (high score = hostile).
Eysenck Personality Questionnaire (EPQ) (Eysenck & Eysenck, 1975)	This questionnaire provides a measure of a number of personality traits. (a) Neuroticism. Characterised by individuals who tend to be very emotional, worry a lot and experience anxiety or depression. (B) Extraversion. This measures a combination of sociability and impulsiveness/excitement-seeking. (C) Psychoticism. Characterised by solidarity, cruel, lacking in empathy and hostile and aggressive behaviour. (D) Criminality. Computed by items from the previous three scales, which tend to differentiate criminals from other groups. Impulsivity, Addictive Potential and Venturesome are also measured through the EPQ (high score = disordered).

Table 7. Description of Variables

Variables	Description
Psychosocial factors	Including: Previous Convictions; Employed at Time of Offence; Parental Separation; Maternal Separation; Paternal Separation; Any Physical Abuse; Physical Abuse by a male; Physical Abuse by a female; Physical Abuse by a male & female; Any Sexual Abuse; Sexual Abuse by a male; Sexual Abuse by a female; Sexual Abuse by a male & female; Intrafamilial Sexual Abuse; Extrafamilial Sexual Abuse; Both Intrafamilial & Extrafamilial Sexual Abuse; Suicide Attempt; Self-Injury (not suicide attempt); Substance Misuse.
	These categorical (i.e., yes/no) variables were also converted into a linear psychosocial variable by summing the number of psychosocial victimisation and / or deprivation factors present for each participant. This was done separately for childhood and adult psychosocial factors.
	<u>Number of childhood psychosocial variables (each variable is equal to one count)</u>: Separated from mother, separated from father, Victim to physical abuse aged, (1) 0-6 years, (2) 7-12 years, (3) 13-15 years; physical abuse perpetrated by, (4) natural father, (5) stepfather, (6) foster father, (7) other male relative, (8) male staff in care home, (9) other male professional, (10) natural mother, (11) stepmother, (12) foster mother, (13) other female relative, (14) female staff in care home, (15) other female professional; Victim to sexual abuse aged, (16) 0-6 years, (17) 7-12 years, (18) 13-15 years; sexual abuse perpetrated by; (19) natural father, (20) stepfather, (21) foster father, (22) other male relative, (23) male staff in care home, (24) other male professional, (25) natural mother, (26) stepmother, (27) foster mother, (28) other female relative, (29) female staff in care home, (30) other female professional;
	<u>Number of adult psychosocial variables (each variable is equal to one count)</u> : Previous convictions, previous custodial sentence, unemployed at time of offence, history of substance abuse, deliberate self-harm, suicide attempt.
Personality disorder traits	Measured categorically (individual PDs and clusters indicated by PDQ) and continuously (count up the number of separate PDs and total PDQ score)
Therapeutic outcome	Clinically significant change in psychometric measures (EPQ, HDHQ and CFSEI) post intervention Time at Grendon in Months

3.3.5 Ethics

Ethical approval was sought and granted from both the University of Birmingham College of LES Ethics Committee and Grendon Research Advisory Group. Upon admission to Grendon, prisoners sign and date a consent form asking for their consent that their data maybe used for research purposes in the future (Appendix 3). In addition, this data has been used previously in research and publications. Although the current view of those whose data was used in the study was not available, prisoners at Grendon are elected as research representatives, who comment on planned research and feedback their views before the ethics committee decides to pass the proposal. Also the results of the research will be available to current prisoners at Grendon.

The research database is held in line with the Data Protection Act 1998. The database that was created for this research, from the original database held at HMP Grendon Research and Development unit, was both confidential and anonymous. No names, identification numbers nor identifiable data (such as prison number or date of birth) were included in the database; therefore ensuring information on the research database could not be traced back to any individual. Further to this, individual cases will not be reported as group data is the interest of the research.

3.4. RESULTS

Within this results section, frequencies will be presented first, followed by the findings for each of the research questions in turn.

3.4.1 Frequencies

3.4.1.1 Psychosocial Factors

Table 8 presents the psychosocial factors present within the sample at HMP Grendon. Almost all prisoners had previous convictions (93.3%) and only a third (33.6%) was employed at the time of committing the index offence. Two thirds of the population (66.9%) had experienced paternal separation prior to the age of 16 years. For the majority, this was from their father (62.1%), however almost half the sample had experienced separation from their mother (47.9%).

Well over a half of participants reported experiencing physical abuse (62.4%), mainly this had been perpetrated by a male (61.8%), however almost a quarter of respondents reported physical abuse by both a male and female (26.8%). Only a small percentage of participants reported experiencing physical abuse only at the hands of a female (11.4%). Over two thirds (39.0%) disclosed that they had been a victim to sexual abuse. Again the majority disclosed being abused by a male (78.4%), a small number disclosed being abused by both a male and a female (12.9%), however the least percentage of participants reported they had only experienced sexual abuse by a female alone (8.7%). Of those prisoners who had this experience, the majority disclosed that it was intrafamilial (59.5%). Only a small number disclosed experiencing both intrafamilial and extrafamilial sexual abuse (6.0%). Substance misuse was high within the sample (85.5%), along with a relatively high percent of the population reporting a suicide attempt (46.9%) and engaging in deliberate self-harm (33.7%). The mean number of childhood psychosocial factors was 3.4 factors (SD = 2.4) and the mean number of adult psychosocial factors was 4.0 (SD =1.3).

Table 8. Psychosocial Factors (categorical, N = 676)

Variable	N (%)
Previous Convictions	631 (93.3%)
Employed at Time of Offence	227 (33.6%)
Parental Separation	452 (66.9%)
Maternal Separation	324 (47.9%)
Paternal Separation	420 (62.1%)
Any Physical Abuse	422 (62.4%)
Physical Abuse by a male	260 (61.8%)
Physical Abuse by a female	48 (11.4%)
Physical Abuse by a male & female	113 (26.8%)
Any Sexual Abuse	261 (38.6%)
Sexual Abuse by a male	207 (78.4%)
Sexual Abuse by a female	23 (8.7%)
Sexual Abuse by a male & female	34 (12.9%)
Intrafamilial Sexual Abuse	88 (59.5%)
Extrafamilial Sexual Abuse	51 (34.5%)
Both Intrafamilial & Extrafamilial Sexual Abuse	9 (6.0%)
Suicide Attempt	317 (46.9%)
Self-Injury (not suicide attempt)	228 (33.7%)
Substance Misuse	578 (85.5%)

Variable (continuous)	Mean (SD)
Childhood psychosocial factors	3.4 (2.4)
Adult psychosocial factors	4.0 (1.3)

3.4.1.2 Personality Disorder Traits

Table 9 shows a breakdown of the number and percentage of participants who fell
into each PD trait according to the PDQ. A high percentage of the population (86.2%)
were found to have traits indicative of a diagnosis of one or more PDs. The mean raw
total score for the PDQ was 31.7 (sd = 13.5) and the mean number of PD categories
endorsed was 3.6 (sd = 2.5.) PDs were grouped into three clusters according to the
DSM-IV classification. Cluster B was the most frequent of the clusters of PD to be
found within the sample (75.3%). In addition, ASPD, which is within the cluster B

Table 9. Prevalence of PD (measured by the PDQR and PDQ4)

Variable	N = 676 (n = [%])
Mean raw score (continuous) (sd)	31.7 (13.5)
Mean number of PDs (continuous) (sd)	3.6 (2.5)
One or more PD	583 (86.2%)
Cluster A	437 (64.6%)
Paranoid	399 (59%)
Schizoid	115 (17%)
Schizotypal	193 (28.6%)
Cluster B	509 (75.3%)
Antisocial	456 (67.5%)
Borderline	349 (51.3%)
Histrionic	66 (9.8%)
Narcissistic	127 (18.8%)
Cluster C	448 (66.3%)
Avoidant	353 (52.2%)
Dependent	78 (11.5%)
Obsessive Compulsive	297 (43.9%)
Total Score	
Greater or Equal to 50	62 (9.2%)
Greater or Equal to 30	375 (55.5%)

disorders, was the most prevalent of the disorders (67.5%). Despite being the least frequently reported of the three clusters, cluster A disorders were reported in almost two-thirds of respondents (64.6%). Further to this, paranoid PD was the most frequently reported of the cluster A disorder PD and the second most prevalent PD in the sample after ASPD (59%).

3.4.1.3 Therapeutic Outcome defined by Psychometric Data

The sample population showed an improvement on functioning as measured by pre and post psychometrics (see table 10). Psychoticism, neuroticism, addictive potential, criminality, impulsivity, venturesome and hostility all positively reduced post

Table 10. Mean Psychometric Score Pre and Post Intervention

Variable (Measure)	Mean pre (SD)	Mean post	Mean Difference (Z value)
Psychoticism (EPQ)	9.7 (4.6)	6.5 (4.6)	-6.8*
Extraversion (EPQ)	13.5 (5.5)	14.3 (5.0)	-4.3*
Neuroticism (EPQ)	16.6 (5.4)	18.2 (5.6)	-7.5*
Addictive potential (EPQ)	18.2 (5.6)	13.8 (5.8)	-7.6*
Criminality (EPQ)	17.9 (5.8)	13.1 (6.0)	-7.8*
Impulsivity	11.3 (5.1)	6.6 (5.4)	-9.0*
Venturesome (EPQ)	10.3 (3.8)	9.2 (4.1)	-4.5*
Hostility overall (HDHQ)	26.0 (8.8)	17.9 (8.3)	-9.5*
Intrapunitive Hostility (HDHQ)	10.6 (4.2)	7.1 (3.7)	-9.7*
Extra Punitive Hostility (HDHQ)	15.5 (6.2)	10.7 (5.7)	-7.8*
Self esteem (SEI) (a)	15.1 (7.3)	22.4 (7.7)	-9.0*

Note. *Significant at p< .0001. All low scores are positive unless indicated. (a) High scores are positive

intervention. Extraversion and self-esteem both positively increased. Self-esteem increased by the greatest number of points within the sample (mean increase = 7.1, SD = 8.4).

3.4. 2 Hypothesis 1. Is there an association between psychosocial factors and PDs?

3.4.2.1 Continuous Data

There was a significant relationship between the number of psychosocial factors present in childhood and both total PDQ score, $(r_s = .173, p < .0001)$ and the count of PD endorsed $(r_s = .173, p < .0001)$. Adult psychosocial factors were also significantly correlated with both total PDQ score, $(r_s = .225, p < .0001)$ and the count of PD endorsed $(r_s = .232, p < .0001)$. Although the size of the correlation was small, it demonstrated that the more times an individual is exposed to negative experiences as a child, it increases the presence of PD, indicated by the PDQ.

3.4.2.2 Categorical Data

3.4.2.2.1 Childhood Psychosocial Factors

Table 11 illustrates the chi square associations found between childhood psychosocial factors and PD, according to the PDQ. There was high prevalence of all psychosocial factors across the disorders, however cluster B disorders, and mainly those with ASPD, were most frequently disclosing the presence of these factors. However, BPD was found to be associated with more psychosocial factors than any of the other clusters or disorders and was the only disorder to be significantly associated with experiencing sexual abuse. Cluster A (including paranoid), cluster B (including ASPD and BPD) and avoidant (within the C cluster), were found to be significantly associated with childhood psychosocial factors. Physical abuse was significantly associated with more PDs than any of the other childhood psychosocial factors and showed the most prevalence with the Cluster B disorders (79%). Those participants who reported experiencing physical abuse were significantly more likely to indicate a diagnosis of cluster A disorders (OR = 1.6), cluster B disorders (OR = 2), including ASPD (OR = 1.6) and BPD (OR = 2.6) and within the C cluster, avoidant (OR = 1.6), than those not experiencing this form of abuse.

Sexual abuse was found to occur frequently with cluster B PDs (77%), specifically ASPD (71%). However, it was found to be significantly associated with, and increased the odds of experiencing BPD (OR = 1.7). Further to this, parental separation was reported to occur frequently within the sample, specifically within cluster B disorders (77%). Parental separation increased the odds of a diagnosis of

Table 11. Childhood Psychosocial Factors and PD

PD	Childhood Psychosocial Factor (n = [%] χ2, p <) (N= 676)		
	Parental Separation (n = 452)	Any Physical Abuse (n = 422)	Any Sexual Abuse (n = 264)
Cluster A (n = 408)	305 (68%)	**287 (68%)** **7.650, .004***	174 (66%)
Paranoid (n = 374)	**285 (63%)** **10.364, .001****	259 (61%)	152 (58%)
Schizoid (n=111)	79 (18%)	80 (19%)	43 (16%)
Schizotypal (n = 189)	134 (30%)	132 (31%)	80 (30%)
Cluster B (n = 497)	348 (77%)	**335 (79%)** **13.236, .0001****	203 (77%)
ASPD (n = 446)	318 (71%)	**298 (71%)** **fe 7.251, .005***	173 (66%)
BPD (n = 334)	**251 (56%)** **8.260, .003***	**254 (60%)** **33.692, .0001****	**157 (60%)** **9.957, .001****
Histrionic (n = 66)	44 (10%)	47 (11%)	29 (11%)
Narcissistic (n = 124)	87 (19%)	85 (20%)	51 (19%)
Cluster C (n = 438)	306 (68%)	287 (68%)	186 (71%)
Avoidant (n = 347)	244 (54%)	**238 (56.4%)** **8.087, .003***	153 (58%)
Dependent (n = 76)	53 (12%)	56 (13%)	35 (13%)
OCPD (n = 291)	201 (45%)	187 (44%)	120 (46%)

Note. Degrees of freedom = 1. Bonferroni Adjustment Significant at 0.005* Significant at 0.001**

both BPD (OR = 1.6) and paranoid (OR = 1.7) compared to those who did not experience parental separation.

3.4.2.2.2 Adulthood Psychosocial Factors

Table 12 shows the associations found between PDs and psychosocial factors present in adulthood. Antisocial behaviour, determined by previous convictions and unemployment, was found to be most prevalent and significantly associated with the cluster A and B PD. Those prisoners with previous convictions were more likely to have met diagnostic criteria for cluster A (OR = 2.7) PDs specifically paranoid (OR =

3.1) than to have no history of convictions. However, higher percentages and significant associations were found within the cluster B disorder (78%, OR = 4.25). Those with previous convictions were seven times more likely to meet criteria for ASPD (OR = 7.4) and two and a half times more likely to endorse BPD traits (OR = 2.5) than those without previous convictions. Similarly, unemployment was significantly prevalent in the cluster B disorders (OR = 1.7). Unemployment increased the likelihood of ASPD (OR = 1.9) and BPD (OR = 1.6) PDs, as indicated by the PDQ.

In contrast, cluster C disorders were found to be significantly associated with the psychosocial factors characterised by poor coping, deliberate self-injury (OR = 1.7) and suicide attempt (OR = 2). In addition, avoidant was found significantly more often in those reporting deliberate self-injury (OR = 2) and a suicide attempt (OR = 1.6) than those not reporting this behaviour. In contrast however, deliberate self-injury and suicide attempt were found to occur significantly less often in those with dependent PD (OR = 2 and OR = 2.7 respectively) compared to those exhibiting such behaviour. However, suicide attempts were found significantly more often in cluster A and B disorders (OR = 1.6) and considerably more so in BPD (OR = 3). BPD was also found to increase the odds of reported incidents of self-injury (OR = 2.6). Interestingly, self-injury was found significantly less often in those with schizotypal (OR = 1.7) than those with a history of self-injury. Substance misuse was disclosed more often found in the Cluster B disorders (OR = 2.7). More specifically substance misuse increased the odds of a diagnosis of ASPD (OR = 3.4) and BPD (OR = 2.4).

Table 12. Adulthood Psychosocial Factors and Personality Disorder

	Adulthood Psychosocial Factor (n = [%] $\chi2$, p <) (N= 676)				
	Previous Convictions (n = 631)	Unemployed (n = 419)	Suicide Attempt (n = 317)	Self-Injury (n = 228)	Substance Misuse (n = 578)
Cluster A (n=415)	**418 (66%) 10.605, .001****	275 (66%)	**220 (69%) 7.504, .004***	153 (67%)	378 (65%)
Paranoid (n= 399)	**384 (61%) 13.156, .0001****	252 (60%)	196 (62%)	140 (61%)	350 (61%)
Schizoid (n= 115)	108 (17%)	72 (17%)	63 (20%)	43 (19%)	93 (16%)
Schizotypal (n = 193)	184 (29%)	126 (30%)	104 (53%)	**81 (36%) 9.103, .002***	164 (28%)
Cluster B (n= 509)	**489 (78%) 24.668, .0001****	**330 (79%) 7.959, .003***	**252 (78%) 7.082, .005***	183 (80%)	**448 (78%) 16.490, .0001***
Antisocial (n = 437)	**445 (70%) 40.625, .0001****	**304 (73%), 14.751, .0001****	220 (69%)	161 (71%)	**407 (70%) 24.018, .0001***
Borderline (n = 349)	**335 (53%) 8.125, .003***	**235 (56%) 7.927, .003***	**206 (65%) 43.685, .0001****	**152 (67%) 30.621, .0001****	**313 (54%) 11.115, .001***
Histrionic (n = 66)	66 (11%)	44 (11%)	38 (12%)	29 (13%)	61 (11%)
Narcissistic (n = 127)	124 (20%)	76 (18%)	67 (55%)	53 (23%)	111 (19%)
Cluster C (n = 430)	417 (66%)	281 (67%)	**233 (74%) 15.664, .0001****	**167 (73%), 8.922, .002***	385 (67%)
Avoidant (n = 353)	330 (52%)	225 (54%)	**193 (61%) 18.869, .0001****	**136 (60%), 8.068, .003***	303 (52%)
Dependent (n = 78)	74 (12%)	55 (13%)	**48 (15%) 7.279, .005***	**42 (18%), 16.021, .0001****	70 (13%)
Obsessive-compulsive (n = 297)	276 (44%)	180 (43%)	150 (47%)	110 (48%)	257 (45%)

Notes. Degrees of freedom = 1. Bonferroni Adjustment Significant at 0.006* Significant at 0.001**

These findings demonstrate the strong relationship between PDs and psychosocial factors. Although not all PD categories demonstrated significant associations, there appear significant relationships between those that did. Whether these associations are mirrored in therapeutic outcome will now be explored.

3.4.3 Hypothesis 2. Is there an association between PDs and therapeutic outcome, defined by a change in psychometric scores post intervention and therapist feedback?

3.4.3.1 Categorical Data

Tables 13 and 14 demonstrate clinically significant changes in psychometric scores according to PD traits as indicated by the PDQ.

3.4.3.1.1 Cluster A PDs

Those reporting a clinically significant reduction on psychoticism (OR = 3.1), and extra punitive hostility (OR = 3.6) were over thrice as likely to meet diagnostic criteria for cluster A PD than not. In consideration of the disorders which fall under the A cluster, a reduction in psychoticism (OR = 3.3) and both intrapunitive and extrapunitive hostility (OR = 4.3) were significantly more likely to have occurred in those with paranoid PD than those without this PD.

3.4.3.1.2 Cluster B PD

A clinically significant reduction on psychoticism was found to occur considerably more often in those reporting cluster B disorders (OR = 8.3) than those not. In addition, a clinically significant reduction on addictive potential (OR = 3.1)

criminality (OR = 3.6), impulsivity (OR = 4.4) and extra punitive hostility (OR = 4.5) were found in those indicating cluster B disorder compared with those that did not. Specifically, clinically significant reductions on the psychoticism (OR = 5.5), impulsivity (OR = 4.3) and extrapunitive hostility (OR = 2.8) were reported in those with ASPD compared to those without this PD. In addition, a reduction in extrapunitive hostility was also more frequently found in those indicating the presence of BPD (OR = 2.5), compared to those not indicating this PD. However, those reporting a clinically significant reduction on extrapunitive hostility were four times more likely to not have narcissistic (OR = 4.2) than those that did.

3.4.3.1.3 Cluster C PD

In contrast, those with cluster C disorders demonstrated clinically significant changes on other psychometric dimensions. A clinically significant increase on extraversion (OR = 4.3) and self-esteem (OR = 3.6) and a reduction in intrapunitive hostility (OR = 2.7) were more likely found within this cluster than not.

More specifically, those with avoidant PD reported clinically significant reductions on neuroticism (OR = 2.8) and intropunitive hostility (OR = 2.8), and increased extraversion (OR = 3.8) and self-esteem (OR = 3.9), compared to those not indicating these disorders.

Table 13. Clinically Significant Change in Psychometric Scores and Personality Disorder

Personality Disorder	Clinically Significant change in EPQ scores (N= 193)						
	Psychoticism (n=49) n (%), χ2, p <	Extraversion (n=33) n (%), χ2, p <	Neuroticism (n=62) n (%), χ2, p <	Addictive (n= 57) n (%), χ2, p <	Criminality (n=55) n (%), χ2, p <	Impulsivity (n = 64) n (%), χ2, p <	Venturesome (n=30) n (%), χ2, p <
Cluster A	**38 (77.6%) 9.050 .002***	23 (69.7%)	41 (66.1%)	41 (71.9%)	38 (69.1%)	44 (68.7%)	13 (43.3%)
Paranoid	**35 (71.4%) 11.337, .001****	18 (54.5%)	34 (54.8%)	36 (63.2%)	34 (61.8%)	41 (64.1%)	12 (40.0%)
Schizoid	7 (14.3%)	7 (28%)	6 (9.7	4 (7.0%)	4 (7.2%)	7 (10.9%)	1 (3.3%)
Schizotypal	15 (30.6%)	13 (21.2%)	15 (24.2%)	17 (29.8%)	14 (25.5%)	15 (23.4%)	5 (16.7%)
Cluster B	**46 (93.9%) 15.352 .0001****	27 (81.8%)	48 (77.4%)	**49 (86.0%) 7.717, .004***	**48 (87.3%) 8.799 .003***	**57 (89.1%) 12.620, .0001****	21 (70%)
Antisocial	**43 (87.8%) 15.324 .0001****	22 (66.6%)	41 (66.1%)	42 (73.7%)	42 (76.4%)	**54 (84.4%) 15.254, .0001****	19 (63.3%)
Borderline	33 (67.3%)	19 (57.6%)	35 (56.5%)	35 (61.4%)	34 (61.8%)	39 (60.9%)	14 (46.7%)
Histrionic	5 (10.2%)	1 (3.0%)	4 (6.5%)	4 (7.0%)	4 (7.2%)	4 (6.2%)	3 (10.0%)
Narcissistic	9 (18.4%)	1 (3.0%)	8 (12.9%)	10 (17.5%)	9 (16.4%)	11 (17.2%)	4 (13.3%)
Cluster C	35 (71.4%)	**29 (87.9%) 7.780 .003***	47 (75.8%)	44 (77.2%)	39 (70.9%)	47 (73.4%)	20 (66.7%)
Avoidant	30 (61.2%)	**26 (78.8%) 9.694, .001****	**44 (71.0%) 10.085, .001****	39 (68.4%)	36 (65.5%)	36 (56.3%)	13 (43.3%)
Dependent	6 (1.2%)	3 (9.1%)	7 (11.3%)	10 (17.5%)	7 (12.7%)	8 (12.5%)	4 (13.3%)
Obsessive-compulsive	22 (44.9%)	13 (39.4%)	24 (38.7%)	27 (47.4%)	20 (36.4%)	31 (48.4%)	12 (40.0%)

Notes. Degrees of freedom = 1. Bonferroni Adjustment Significant at 0.005* Significant at 0.001**

Table 14. Clinically Significant Change in Psychometric Scores and Personality Disorder (continued)

Personality Disorder	Clinically Significant change in Hostility and Self-Esteem scores (N= 193)		
	Intropunitive Hostility (N=71) n (%), $\chi2$, p <	Extrapunitive Hostility (N=50) n (%), $\chi2$, p <	Self-Esteem (N=77) n (%), $\chi2$, p <
Cluster A	51 (71.8%)	40 (80%), 11.616, .0001**	55 (71.4%)
Paranoid	**45 (45.9%), 7.138, .006***	**38 (38.8%), 16.528, .0001****	47 (49.0%)
Schizoid	5 (20%)	5 (20.0%)	11 (45.8%)
Schizotypal	18 (39.1%)	16 (34.8%)	22 (50%)
Cluster B	57 (80.3%)	**45 (90%), 10.143, .001****	63 (81.8%)
Antisocial	50 (41%)	**40 (32.5%), 7.191, .005***	53 (44.2%)
Borderline	43 (44.3%)	**34 (68%), 7.553, .005***	48 (62.3%)
Histrionic	5 (7%)	4 (8%)	6 (7.8%)
Narcissistic	11 (15.5%)	**12 (24%), 10.354, .002***	13 (16.9%)
Cluster C	**56 (78.9%), 8.527, .002***	35 (70%)	**63 (81.8%), 13.914, .0001****
Avoidant	**49 (47.6%), 11.049, .001****	31 (30.4%)	**56 (56%), 18.518, .0001****
Dependent	12 (66.7%)	8 (42.1%)	13 (65.0%)
Obsessive-compulsive	32 (39.5%)	21 (26.2%)	32 (40%)

Notes. Degrees of freedom = 1. Bonferroni Adjustment Significant at 0.005* Significant at 0.001**

3.4.3.2 Continuous Data

Continuous variables showed there was a significant relationship between the difference in psychometric scores pre and post intervention and PD variables (see Table 15). Both the PDQ total score and number of PDs identified by the PDQ were significantly related to a reduction in psychoticism, neuroticism, addiction potential, criminality, impulsivity, venturesome, intrapunitive hostility, and extra punitive hostility. In addition, both the PDQ total score and number of PDs identified by the PDQ were significantly related to an increase in both extraversion and self-esteem. Interestingly there was a negative correlation between the number of months spent at Grendon and both total PDQ score (r= -.278, p<.034) and the number of PDs endorsed (r= -.292, p<.026). Thus, suggesting that those with more severe PDs remain in treatment for a shorter period of time. In addition, the overall therapeutic outcome variable was found to be significantly related to total PDQ score and the number of PDs identified.

3.4.4 Hypothesis 3. Is there an association between psychosocial factors and therapeutic outcome, defined by a change in psychometric scores post intervention?

When considering psychosocial factors and therapeutic outcomes, staying at Grendon for over 18 months was significantly associated with unemployment at time of index offence ($\chi2$=6.741(1), p<.009). Those employed at the time of their offence were more likely to reach 18 months at Grendon (61.5%) than those not employed (38.5%). However, no other categorical variables were found to be significantly associated with

Table 15. Correlational Analysis Between PD and Therapeutic Outcome

Psychometric Item	PDQ Total Score	Number of PDs Identified
Psychoticism (EPQ)	r= -.249[**], p<.001	r= -.246[**], p<.001
Extraversion (EPQ)	r= .269[**], p<.001	r= .273[**], p<.000
Neuroticism (EPQ)	r= -.171[*], p<.020	r= -.187[*], p<.011
Addiction Potential (EPQ)	r= -.289[**], p<.000	r= -.273[**], p<.001
Criminality (EPQ)	R= -.278[**], p<.000-	r= -.286[**], p<.000
Impulsivity (EPQ)	r= -.157[*], p<.032	r= -.157[*], p<.032
Venturesome (EPQ)	r= .199[**], p<.006.	r= .179[*], p<.013
Intrapunitive Hostility (HDHQ)	r= -.302[**], p<.000	r= -.282[**], p<.000
Extra punitive Hostility (HDHQ)	r= -.297[**], p<.000	r= -.273[**], p<.000
Self-esteem (CFSEI)	r= .221[**], p<.002	r= .230[**], p<.002
Time at Grendon in months	r= -.278[*], p<.034	r= -.292[*], p<.026
Overall therapeutic outcome	r= -.075[*], p<.050	r= -.076[*], p<.047

Notes. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

one another. In addition, there was no association between categorical variables for psychosocial factors and therapeutic outcome measured by change in psychometric scores. However significant association between the number of adulthood psychosocial factors and a reduction in psychoticism, addiction potential and criminality was found. In addition, a significant correlation was reported for number of childhood psychosocial factors and a reduction in extra punitive hostility (see table 16).

Table 16. Psychosocial Factors and Therapeutic Outcome (N=184)

Psychometric Item	Psychosocial Factors	
	Childhood	Adulthood
Psychoticism (EPQ)	-.067, .364	-.148*, .044
Addiction Potential (EPQ)	-.104, .160	-.194**, .008
Criminality (EPQ)	-.093, .210	-.193**, .009
Extrapunitive Hostility (HDHQ)	-.179*, .013	-.136, .061

Notes. **. Correlation is significant at the 0.01 level (2-tailed).   *. Correlation is significant at the 0.05 level (2-tailed).

3.4.5 Hypothesis 4. Does PD, indicated by the PDQ mediate the association between psychosocial factors and therapeutic outcome within this environment?

Mediational analysis could not be completed as the first stage of analysis was not significant. Thus, regression analysis was performed to explore if psychosocial factors and PD contributed to a predictive model for therapeutic outcome.

3.4.6 Regression Analysis

Regression was only performed on those variables shown to have significant association with one another in prior analysis**.**

3.4.6.1 Psychosocial Factors and PD

3.4.6.1.1 Continuous Data

Linear regression was performed with the number of childhood and adult psychosocial factors and both total PDQ scores and the number of PDs identified by the PDQ. Table 17 illustrates that the regression model for predicting both the total PDQ score and the number of PDs identified by the PDQ were significant for adult

Table 17. Linear Regression of PD and Psychosocial Factors

	B	Standard Error	t	Sig.
PDQ Total Score				
Intercept Childhood Psychosocial Factors	.470	.227	2.068	.039
Intercept Adulthood Psychosocial Factors	2.019	.401	5.032	.000**
Number of PD				
Intercept Childhood Psychosocial Factor	.090	.042	2.128	.034
Intercept Adulthood Psychosocial Factors	.371	.075	4.947	.000**

Notes. **. Bonferroni correction significant at the 0.005 level (2-tailed).

psychosocial factors, however not for childhood psychosocial factors. The presence of adult psychosocial factors increased the odds of meeting criteria for diagnosis of PD by .371, however increased the total PDQ score by an odds ratio of 2.019.

3.4.6.1.2 Categorical Data

Only ASPD and BPD produced significant findings in relation to this variable. Logistic regression was performed on the categorical PD and psychosocial variables (see Table 18). A history of previous convictions was found to predict the presence of ASPD. In fact those with previous convictions were over 8 times more likely to have met diagnostic criteria for ASPD, according to the PDQ, than to not (OR = 8.7). Further to that, unemployment (OR = 2.5) and substance misuse (OR = 4) also predicated the presence of ASPD. However, the PDQ diagnostic items for ASPD includes engagement in criminal activity and difficulty in maintaining long-term employment, therefore explaining the finding of these significant associations.

Disclosure of being victim of physical abuse and sexual abuse significantly predicted the presence of BPD (OR = 2.5 and OR = 1.6, respectively) compared to those not indicating this disorder. A history of suicidal behaviour and deliberate self-injury

Table 18. Logistic Regression of Psychosocial Factors and PD

	B	Std. Error	Wald	Sig.	Exp(B)	95% C.I . for Exp (B)	
						Lower	Upper
Previous Convictions							
ASPD	2.170	.529	16.819	.000**	8.760	3.105	24.713
Unemployment							
ASPD	.917	.306	8.989	.003*	2.503	1.374	4.560
Physical Abuse							
BPD	.925	.200	21.447	.000**	2.521	1.705	3.728
Sexual Abuse							
BPD	.511	.162	9.897	.002*	1.666	1.212	2.290
Suicide							
BPD	1.235	.239	26.752	.000**	3.440	2.154	5.494
Self Injury							
BPD	.891	.224	13.339	.000**	2.268	1.471	3.519
Substance Misuse							
ASPD	1.415	.423	11.162	.001**	4.115	1.794	9.43

Notes. **. Significant at the 0.01 level (2-tailed). *. Significant at the 0.05 level (2-tailed).

were also predictive of BPD (OR= 3.4 and OR = 2.3 respectively). PDs were not found to be predictive of parental separation, intrafamilial or extra familial sexual abuse.

3.4.6.2 PD and Therapeutic Outcome

3.4.6.2.1 Continuous Data

The linear variable, overall therapeutic outcome, was entered into a regression model along with the number of PDs endorsed, however, this model was not found to significantly contribute to the regression model.

3.4.6.2.2 Categorical Data

Logistic regression was analysed on each PD that was shown to be significantly related to a clinically significant change in psychometric scores (see Table 19). Cluster A PD was predictive of a clinically significant reduction in extrapunitve hostility post intervention (OR = 2.8). In addition, paranoid was also found to significantly predict a clinically significant reduction on this scale (OR = 3.0). Within the B cluster, ASPD predicted a clinically significant reduction in both psychoticism (OR = 3.5) and impulsivity (OR = 2.6). Further to this, a clinically significant reduction in extrapunitive hostility was predicted by the presence of BPD (OR = 2.6). However, in contrast, a reduction on extrapunitive hostility predicted the absence of narcissistic PD (OR = 4.1). Cluster C PDs were found to predict a clinically significant increase in self-esteem (OR = 2.5). Avoidant was also found to predict a clinically significant increase in both self-esteem (OR = 2.4) and extraversion (OR = 2.9).

3.4. DISCUSSION

3.4.1 This study showed high prevalence rates of PD in a prison sample. Cluster B PDs were the most prevalent of the clusters, however cluster A and C were also found in over half of the sample. ASPD, paranoid, BPD and avoidant were the most common disorders identified. ASPD and paranoid have been reported as prevalent in such a sample previously (Singleton et al., 1998; Maier et al., 1992; Blackburn et al., 2003), however BPD and avoidant have not. These findings are in support of previous research in this field, which identified PD to be highly prevalent in the prison population (Birtchnell & Shine, 2000; Singleton et al., 1998). In fact, PD was more

Table 19. Logistic Regression of PD and Therapeutic Outcome

	B	Std. Error	Wald	Sig.	Exp(B)	95% C.I. for Exp (B)	
						Lower	Upper
Cluster A							
Extrapuntive Hostility	1.02	4.36	5.53	.019*	2.77	1.19	6.54
Paranoid							
Extrapunitive Hostility	1.10	.42	6.92	.009**	3.02	1.33	6.87
ASPD							
Psychoticism	1.26	.57	4.94	.026*	3.51	1.16	10.62
Impulsivity	.94	.47	4.04	.044*	2.56	1.02	6.37
BPD							
Extrapunitive Hostility	.94	.35	7.31	.007**	2.56	1.30	5.01
Narcissistic							
Extrapunitive Hostility	1.42	.47	9.28	.002**	4.14	1.66	10.31
Cluster C							
Self-esteem	.93	.42	4.83	.028*	2.53	1.11	5.79
Avoidant							
Self-esteem	.86	.40	4.59	.032*	2.36	1.08	5.18
Extraversion	1.07	.51	4.31	.038*	2.91	1.06	7.97

Notes. **. Significant at the 0.01 level (2-tailed). *. Significant at the 0.05 level (2-tailed).

prevalent in this sample of Grendon residents than is reported for the both remand prisoners and the general prison population (Singleton et al, 1998). However, the measurement for PD may explain this high prevalence and will be discussed in more detail later.

3.4.2 Hypothesis 1. Is there an association between psychosocial factors and PDs?

A number of psychosocial factors were found to be significantly associated with the presence of PDs. This is consistent with research citing the impact the environment

has on the development of PD (Drake & Vaillant, 2006; Lieb et al., 2004; Luntz & Widom, 1994; Paris, 1996). Parental separation was prevalent in the sample and found more often in residents who were identified as having paranoid and BPD, than those who were not identified with such disorders. This supports the theory of poor attachment with significant carers contributing to the development of PDs difficulties (Adler, 1985; Paris, 1996). Physical abuse was found to be highly prevalent, and statistically significant, in those with avoidant, ASPD and BPD, compared to those without these disorders. Sexual abuse was only found to be significant in BPD offenders. Those with BPD were more likely to have experienced sexual abuse than those without the presence of this disorder.

In relation to the findings that parental separation and sexual abuse were both significantly higher in BPD offenders, further clarification of this association needs to be sought. It has not been determined whether parental separation is a consequence of being victim to sexual abuse whilst under parental care and therefore removed from such care or, alternatively if, upon removal from parental care, individuals are placed in situations where they are more vulnerable to abuse. Intrafamilial and extrafamilial sexual abuse was not found to be significantly associated with PDs. However, intrafamilial sexual abuse was found most often in those diagnosed with dependant PD and extrafamilial was most prevalent in schizotypal disordered offenders. Further research into the trajectory of childhood psychosocial factors may produce telling results into the vulnerability and experiences of PD individuals.

When we considered the psychosocial factors which predominantly occur in later life, previous convictions were significantly associated with cluster A and cluster B disorders. Cluster C disorders were not found to be significantly associated with previous convictions and lower rates of prisoners with previous convictions, although marginal, were found within this cluster. This may indicate that those with cluster C disordered traits are less criminally minded or criminally active than those with traits indicative of the other clusters or disorders. Whether these traits are a precursor to the disorder developing, or the disorder increases ones vulnerability to engaging in criminality, is not known.

Individuals with cluster B, ASPD and BPD, defined by the PDQ, were found to be significantly more likely to have been unemployed at the time of the offence, than those without this disorder. This may further indicate the likelihood of these individuals engaging in a criminal lifestyle. Alternatively, it may suggest that there are traits within these disorders that prevent someone from obtaining and engaging in legitimate employment.

Reported incidents of suicide attempts and self-injurious behaviour were found across all clusters of PD. BPD and cluster C disorders (avoidant and dependent) were found to both have a significant history of suicide and self-injurious behaviour. Substance misuse was only found to be significantly associated with cluster B disorders, namely ASPD and BPD disorders. This demonstrates the adverse coping strategies, or multifaceted problems, individuals with PD encounter, and the complexity of treatment needs.

BPD was found to be associated with more psychosocial factors than any of the other disorders. This may explain the apparent disproportionate amount of research published on the developmental and treatment factors in relation to this disorder compared to other disorders. Alternatively, it may be that the presence of these risk factors increase vulnerability to, or in fact diagnosis of BPD above any other disorder. In addition, BPD has more diagnostic criteria than other disorders and may therefore create bias in over-diagnosis. Although focusing on only one PD may be more manageable to researchers, it is recommended that more research, which is inclusive of all PDs, is conducted. This would help to develop our understanding of how disorders differ to one another, including the risk factors, development and later associated problems.

The number of childhood and adult psychosocial factors were found to be predictive of PD. As the number of psychosocial factors increased, so did the PDQ total score and number of PDs endorsed. These findings suggest that the concept of polyvictimisation (Finklehor et al., 2007; Turner et al., 2010), or the experiences of multiple victimisation which has a profound affect in later life. The association between repeat victimization and PD does not appear to have been studied before. The data was not able to explore the full range of psychosocial factors and repeat victimization, however has indicated that this may be a future area of interest for researchers. Further understanding of this area would hope to inform understanding of developmental factors which may contribute to a development of PD.

The adult psychosocial factors studied in this research provide evidence that PD

individuals present with complex treatment needs. They not only have maladjusted coping strategies, but their disorders often co-occur with other difficulties, such as substance misuse and a history of criminal behaviour. A greater understanding of coping strategies and problematic areas those with PD encounter, may inform not only diagnostic criteria, but also intervention. Psychosocial factors only contributed to the predictive model for PD marginally. However, the scales used in the variables were relatively small. Therefore, only slight changes on the outcome variables can be expected. It is recommended that future research into the association between recurrent revictimisation and PD be explored.

Previous convictions, unemployment and substance misuse, were found to be predictive of ASPD. Being a victim of physical and sexual abuse and having attempted suicide in the past were all predictive of BPD. These findings further support the contribution of social factors to the development of PD and go further to suggest that the presence of such psychosocial or risk factors, predict later difficulties in personality functioning. This reinforces the need for early intervention with such individuals, however if not feasible, then at least high intensity intervention when detected. However, it should be noted that not all individuals who are abused, go on to develop PD.

When considering Coid's (2003) developmental framework for high-risk offenders with PD, parallels in the psychosocial variables identified in this study and the risk factors identified by Coid (2003) can be drawn. Coid (2003) identified family disruption and physical / sexual abuse as childhood and adolescent risk factors for this

population. This study found high rates of parental separation (66.9%), physical abuse (62.4%) and sexual abuse (38.6%). Following this, Coid (2003) identified adulthood risk factors to include criminality, substance misuse and poor work record, all reported frequently within the current study. Further to this, all these psychosocial factors were found to be significantly associated to the development of specific PDs, and all except parental separation were found to contribute to predictive models for the indication of PD, measured by the PDQ. These findings evidence support for Coid's (2003) model. It should be noted that Coid's (2003) model is based on high-risk offenders. Grendon holds category B and C prisoners therefore, further research into the application of Coid's (2003) model with such a population should be conducted before robust comparisons are drawn.

Although not all PD categories demonstrated significant associations, there appear significant relationships between those that did. Whether these associations are mirrored in therapeutic outcome will now be explored.

3.4.3 Hypothesis 2. Is there an association between PDs and therapeutic outcome, defined by a change in psychometric scores post intervention?

Change in psychometric scores pre and post intervention at Grendon have previously been reported (Gunn et al., 1978; Newton, 1998; 2000). However, this has not before been looked at in the context of PD. When considering clinically significant change in psychometric scores between diagnosis of PD or not, significant findings were reported. Those with cluster A disorder were significantly more likely to report a

clinically significant reduction on psychoticism and extra punitive hostility than those without disorders in this cluster. Further to this, cluster A and paranoid PD were predictive of a reduction in extrapunitive hostility .

Those with cluster B disorder, were significantly more likely to report a clinically significant reduction on psychoticism, criminality, impulsivity and extra punitive hostility than those without disorders in this cluster. A reduction in psychoticism and impulsivity was found to predict the presence of ASPD and a reduction in extrapunitive hostility was predictive of BPD. Interestingly however, a reduction in extrapunitive hostility was found to predict the absence of narcissistic, suggesting those with this disorder may not reduce extrapunitive hostility through treatment within a TC. Adverse treatment effects have been reported for ASPD (Harris et al., 1994), perhaps similar processes occur with narcissism.

In contrast, those with cluster C disorders were significantly more likely to report a clinically significant increase on extraversion and self-esteem, and a reduction in intropunitive hostility, than those who without disorders in this cluster. An increase in self-esteem was predictive of cluster C PDs. In addition, an increase in self-esteem and extraversion predicted the avoidant PD compared to those without this disorder.

When considering the typical traits and presentation of these clusters, the change in psychometric scores, which differs between these clusters, is noteworthy. Cluster A disorders are the odd or eccentric disorders, psychoticism would be expected to be

present within these disorders. Therefore a reduction on this trait suggests that Grendon has been successful at reducing a trait that would be likely to be considered a treatment target, and possibly a risk factor, for this group. This may indicate that Grendon is effective at reducing disordered personality features. The other clusters also support this hypothesis. Cluster B disorders include the typical antisocial and psychopathic features of personality. The reductions in psychometric measures are for items, which include criminality, impulsivity and extrapunitive hostility. These are characteristics of disorders within this cluster, and would be considered features, which directly relate to criminal behaviour (criminality and impulsivity) and prevent barriers to effective intervention (extrapunitive hostility).

Finally, cluster C disorders include the depressive and negativistic features. There was an increase on extraversion and self-esteem and a reduction in intropunitive hostility. Again these are features, which would be considered a treatment target for individuals with disordered traits within the C cluster and Grendon has shown a significant treatment effect with this cluster and the other clusters. This supports the literature, which emphasises that treatment should be evaluated on its effectiveness according to type of PD (Alwin et al., 2006) and in order to reduce risk, personality traits should be addressed (Duggan, 2004; Livesley, 2007). Future research should incorporate additional psychometric measures, which measure traits, typical of specific PDs or clusters, to see if this reduction in characteristic traits of disorders or cluster is repeated. This would be supported by the notion for dimensional scaling of PD traits, where reduction in symptoms is more easily measured.

Finally, those with one or more PD, were more likely to report a clinically significant reduction on psychoticism, impulsivity and intra punitive hostility and an increase in self-esteem than those who without PD. Continuous variables showed there was a significant relationship between the difference in psychometric scores pre and post intervention and PD. Both the PDQ total score and number of PDs identified by the PDQ were significantly related to a reduction in psychoticism, neuroticism, addiction potential, criminality, impulsivity, venturesome, intrapunitive hostility and extra punitive hostility. In addition, both the PDQ total score and number of PDs identified by the PDQ were significantly related to an increase in both extraversion and self-esteem. An explanation for this finding could be that the more disordered an individual, the more they could benefit from intervention and therefore, produce clinically significant change in results, this will be discussed in more detail below.

Although this does not add to the development of treatment for specific disorders, this suggests that Grendon can successfully treat disordered features of personality, in those that exhibit it. In addition, Grendon has shown greater treatment effects as the severity of disorder increases. In addition, it has shown to reduce traits related to risk of offending, such as criminality, impulsivity and venturesome. Further to this, reducing features of hostility may increase responsivity to treatment. This study did not look at effectiveness of a TC for non-PD offenders; however this may be an interesting area to explore. Whether a reduction in criminal attitudes, beliefs, or interpersonal difficulties are observed is such a population may add to the understanding of how Grendon 'graduates' have lower reconviction rates.

Interestingly there was a negative correlation between the number of months spent at Grendon and both total PDQ score and the number of PDs endorsed. Although significant results were found for treating PD traits, these findings suggest that the more disordered an individual, the less time they spend at Grendon. Previous literature has demonstrated that the time spent at Grendon is proportionate to therapeutic outcome. The longer spent in treatment (Genders and Player, 1995) or at least a minimum number of months (Taylor, 2000; Cullen; 1998; Newton, 2000c; Marshal, 1997) is considered to be more effective at treating offenders. Establishing the reasons these offenders disengage and how they may differ from those that do engage, may be advantageous to decreasing treatment attrition. It could be that those that leave Grendon early have in fact completed treatment early, however it is more likely that they have disengaged from treatment. Although some offenders at Grendon choose to leave, others are voted out by the community, often due to not fully engaging in the treatment process, or forcibly removed due to breaking the community rules by engaging in behaviours such as violence or substance misuse. It is hypothesised that these latter reasons are a more likely explanation for those leaving treatment early.

The overall therapeutic outcome variable was not found to be significantly related to total PDQ score, however there was a weak correlation with number of PDs identified. This weak correlation may be a result of small scales used with these variables. Alternatively, it may reinforce the individuality of treatment, dependent on personality traits. It may suggest that treatment targets and a reduction in symptoms of one PD do not necessarily relate to all others. These findings support previous

findings that suggest democratic TC's demonstrate a reduction in symptoms of PD in disturbed populations (Alwin et al., 2006; Dolan & Coid, 1993; Warren et al., 2006). However, there was no previous research identified, on the effectiveness of TC for specific PDs. It is recommended that future research expand on these findings to explore if these trends are replicated in other TC's and with other populations.

However, it should be noted here that there is a possible overlap between the diagnostic measure and change measures. For example the EPQ (Eysenck & Eysenck, 1975) includes a measure of criminality, as does the PDQ for the diagnosis of ASPD. In addition, both measures included criteria to identify impulsivity, neuroticism and hostility, which is also identified within the HDHQ (Caine et al., 1967). Therefore, although this may demonstrate the advantage in choice of these tools to measure therapeutic change, it can also question the validity of the findings. A clinically significant change in outcome measures may to be due to reporting differences, particularly if disclosure or recognition of dysfunctional behaviour increases as a result of intervention.

3.4.4 Hypothesis 3. Is there an association between psychosocial factors and therapeutic outcome, defined by a change in psychometric scores post intervention?

When considering psychosocial factors and therapeutic outcomes, significant association between adulthood psychosocial scores and a reduction in psychoticism, addiction potential and criminality were found. It is noted that adulthood psychosocial factors included substance misuse and previous convictions as a variable. These findings suggested that attitude towards such behaviour has in fact reduced as a result

of treatment in a TC prison. In addition, a significant correlation was reported for number of childhood factors and a reduction in extra punitive hostility. It is hypothesised that a child who is victimised by adults and professionals would have negative feelings towards others, either for victimising them or not protecting them. These findings may demonstrate that TC intervention is effective at treatment those who have been subject to repeat or multivictimisation and present with complex needs. It further shows that it is able to target specific treatment needs. However it is recommended that this area of interest be replicated in larger and diverse populations before robust conclusions are drawn. However, reporting bias and insight into difficulties cannot be ignored and will be discussed further later.

3.4.5 Hypothesis 4. Does PD, indicated by the PDQ mediate the association between psychosocial factors and therapeutic outcome within this environment?

The association between psychosocial factors and therapeutic outcome, and PD and therapeutic outcome, was not robust enough to be able to demonstrate mediation between these variables. Therefore, the mediational analysis was not possible. The potential reasons why this may have been the case, and areas to consider in the future will be explored in the limitations section below.

However, it is interesting to note that although psychosocial factors and therapeutic outcome showed little association, the association between PD and therapeutic outcome showed more potential. From the findings, it appeared that PD does not mediate the association between psychosocial factors and therapeutic outcome.

However, perhaps there is another variable that mediates the relationships between PD and therapeutic outcome. The impact of therapeutic alliance on outcome may be an interesting hypothesis to explore.

What can also be drawn from the findings is the suggestion that Grendon successfully treats interpersonal features, cognitions and negative processing that may occur as a result of a combination of environmental and predetermined traits, and present themselves as PD. This may contribute to the suggestions by Genders and Players (1995) and Gunn and Robertson (1982) that successful intervention may be observed in attitudinal and psychiatric improvement. Comparison can be made with mainstream CBT programmes run in prison. CBT programmes appear to treat the problem (such as anger), however perhaps successful treatment needs to be at a level where individual's thought processes and interpersonal functioning are explored and treated, rather than their actions. Further research into the processes involved in treatment in both a TC and mainstream prison needs conducting before further conclusions can be drawn.

3.4.6 Methodological Considerations

There were a number of limitations to the study, firstly it was a retrospective study using data that was already available and which had been coded into a database. Errors during data entry may have occurred. In addition, coded databases limit the depth of information available to researchers. Many of the variables are coded dichotomously, there was limited information regarding the frequency of variables, in particular the psychosocial variables. For example, variables in regard to sexual or physical abuse are coded from questions of whether someone has been abused and by

whom. Information detailing the frequency of abuse was not available. This lead to difficulties in calculating the revictimisation variable. Ideally, the researcher would have liked to code the number and frequency of adverse incidents occurring in childhood. However, the revictimisation variable was instead coded from a count of the number of different adverse experiences. This may have produced spurious results. For example if an individual had been abused on one occasion was coded the same as an individual who may have been abused systematically at high frequencies. Further to this, the number of adulthood and childhood psychosocial factors collected was low. This therefore meant the scale or continuous variable that was produced from the count of psychosocial factors was small, below 11 counts to be precise. This may account for the small predictive margins produced from regression analysis. Also, this variable was compared to the scales created for PD. One of these scales was the number of PDs endorsed. Similarly this was a small scale, for example, the number of PDs endorsed, was at the highest, seven disorders. Future research interested in revictimisation in relation to PD may benefit from collecting more variables and frequency data.

An additional limitation to the study was the small sample size; this was noticeable mostly in the therapeutic outcome variables, as data was only available for a proportion of the sample. This resulted in small sample groups during analysis, limiting the reliability of findings. A larger sample size appears to be the immediate solution to this.

The data recorded in the database comes from self-report psychometric tests and a semi-structured interview, conducted when prisoners arrive at Grendon. Biases

associated with self-report measures are acknowledged. With what is known about different personality styles, it is unknown whether patterns found with PDs are down to reporting biases, typical of that personality trait, or are indeed reliable and identify true differences in personality traits. Further to that, previous convictions are a spurious measure. It is possible that the sample have engaged in more criminal activity than is disclosed or officially recorded. Overcoming this and including previous offending, including unconvicted offences may produce more meaningful results. In addition, face-to-face interviews or postal questionnaires with the prisoners may have provided more detailed information to the researcher.

Tools used to identify PDs do not come without criticism. In many tools used to assess PDs, subjects are grouped by categories based on DSM-IV and ICD-10, Bateman and Fonagy (2000) present the argument that there is no predictive value to these categories and forming clusters has only face value. Dimensional measures of PD are emerging and access to such a tool would only benefit this research, and future research. Outcome variables concerned with a reduction in PD traits will be more easily demonstrated. However, it should be noted here that the measure used in the current research, the PDQ, is not designed to diagnose PDs. It is used as screening tool to identify personality traits indicative of the disorders specified by the DSM-IV. It is able to identify the presence of traits and where criteria for a diagnosis of PD are met. With this in mind, robust conclusions about PDs cannot be drawn. Only indication of these disorders and presence of the traits can be concluded upon. Resources for training and diagnosis of PDs were not available for this study. Such a tool as the PDQ, allows screening of possible PDs when limited resources are available. Where available, future research using diagnosed cases of PD would be

valuable.

In addition, different versions of the measure were used. The next chapter critiquing the PDQ has detailed the difference between these versions and will not be repeated here. It is noted that whilst these tools are based on different versions of DSM, the item description for traits and clusters and the calculations of these remain the same. However, it is understood that the ordering of questions was amended for the PDQ4, which may increase the reliability of the measure. Whether findings are attributed to this difference in measure is a possibility; however it is hypothesized that this is unlikely due to the limited differences. Eliminating one of the measures would have limited the sample size and produced less meaningful results. For robust findings however, it is recommended that future research utilise only one version of the measure.

Finally, assessing therapeutic outcome did not come without limitations. Therapeutic outcome is measured at Grendon according to 1) whether a prisoner was returned to their sending establishment during the assessment period, 2) if they were considered to have met their therapeutic objectives (determined by their therapist) and 3) a change in psychometric scores pre and post intervention. Only the latter variables were reported in this study to remain objective. This second variable is subjective and two of the variables are categorical, limiting the information or reasoning behind the allocation to a category. Richer analyses of additional therapeutic outcome variables, such as the reason therapeutic objectives were not reached or the reason someone was returned to unit, may be of interest. Previous research has looked at changes in factors such as personality, hostility and locus of control during residence at Grendon

(Newton, 1998). This was replicated in the research and showed promising results in the reduction of PD traits according to clusters. However, it is recommended that additional measures, which consider other personality traits characteristic of specific disorders or clusters, and interpersonal factors, be collected. In particular, it may be useful in future research to include other types of change measures that could 'triangulate' with questionnaire measures. One example could be to use behavioural observations, such as the Persons Relating to Others Questionnaire-III (PROQ3; Birtchnell & Evans, 2004). The PROQ3 is a measure of relating styles. As a feature of PD is difficulty within interpersonal relationships, this would be a useful measure to include in analysis. Further to that, it allows for more meaningful results, which do not rely on self-report measures and accuracy of participant disclosure. The PROQ3 is rated by staff working closely with the individual however, as it is a standardised tool, it is considered less subjective than therapist feedback.

3.4.7 Conclusions

The study has shown a high prevalence of PD offenders within HMP Grendon. Statistical analysis has demonstrated both psychosocial factors associated with, and predictive of PD. The notion of recurrent victimisation has also been considered within the sample and appears to be associated with an increase in PDQ scores and the indication of PD. To our knowledge, this is the first time polyvictimisation and its relation to PD has been explored. Further to this, therapeutic outcome, measured by change in psychometric measures, demonstrated that disordered traits, characteristic of PD clusters, reduce significantly during intervention at Grendon. This suggests that Grendon is effective at treating PD offenders and demonstrates how it may be doing so.

Grendon has demonstrated that it is not only effective at reducing reoffending rates (Marshall, 1997; Taylor 2000). It has also shown that it can reduce disordered traits, indicative of PD within an offending population. As was mentioned in the introduction, TCs are in the minority with the prison system, however PDs are not. Effective intervention for a population that has previously been considered untreatable (NIMH(E), 2003) has been demonstrated as achievable at Grendon. A continuation of this study looking at a larger sample, additional factors associated with personality and a measurable pre and post therapy variable, relating to personality, may be of great value to the literature and application of intervention with such a population. This study intended to add to the understanding of the treatment of PD offenders in a therapeutic community and the effectiveness of such treatment. In addition, it wished to explore the impact psychosocial factors play in this, including the notion of polyvictimisation. The study appears to have achieved this. However, the mediating effect PD has on psychosocial factors and effective intervention of a TC was not possible to examine. Further to this, exploring which aspects of a TC have an effect on PD would be interesting.

Current findings suggest that PD maybe a predictive variable for treatment outcome. It should be considered whether there are other factors than PD which mediate a relationship with therapeutic outcome, possibly therapeutic alliance or processing. This study has identified gaps in our understanding of the successful treatment of PD in a TC prison and identified future research avenues.

Rationale for Chapter 4.

Chapter three has shown the potential effectiveness of a prison based TC in treating PD offenders. This treatment has not been shown to reduce offending behaviour in this study; however this has previously been reported (Marshall, 1997; Newton, 2000; Taylor, 2000). However, it has shown that PD traits can be effectively reduced through this method of intervention. Despite this, there remain difficulties in the identification, diagnosis and measurement of PD per se. This is particularly apparent when attempting to measure a reduction in disordered traits. The final chapter addresses some of these issues in the context of a critique of the PDQ, a diagnostic tool designed to identify PD traits.

Chapter 4

Critique of a Psychometric assessment

Personality Diagnostic Questionnaire (PDQ)

Hyler (1988)

4.1. Rationale

The Personality Diagnostic Questionnaire (PDQ) (Hyler, 1988) was routinely administered at HMP Grendon for a number of years. Its intention was to inform practitioners about the individual and aid research. Of the measures administered at Grendon, the PDQ was considered the tool that best captured what the research wanted to explore and there was a large population available for analysis. However, as with any tool, it does not come without fault. Firstly, the PDQ encounters difficulty when trying to measure a construct, PD, which the diagnosis and measurement of is under controversy and reform, but it also receives criticism regarding reliability. These criticisms are discussed in the chapter below.

4.2. Introduction

In general, psychometric measures are constructed using one of three broad methods, theoretical, empirical or diagnostic. The theoretical test is derived from a prior conception of what the test is designed to measure, whilst statistical methods or procedures are used to derive empirical tests. Finally, diagnostic tests are constructed to produce a psychiatric diagnosis, which are generally aligned to a current diagnostic system. Typically, PDs are diagnosed by clinical interview and assessing the presence of enduring and maladaptive traits according to guidelines such as DSM (APA, 1994) or ICD (WHO, 2007). However, structured interviews that yield DSM personality diagnoses, such as the Structured Clinical Interview for DSM-IIIr Diagnoses (SCID-II) and the PD Examination (PDE), have been criticised for their length (Hyler et al., 1988).

Hyler et al.'s (1988) rationale behind devising the PDQ was that no self-report measure indicating the presence of a PD according to, and specifically based on the DSM-III guidelines, was available. The original Millon Clinical Multiaxial Inventory (MCMI) (Millon, 1987) may have been seen as a contender however, this was not empirically derived against DSM and was based on Millon's theoretical model. Millon's (1969/1983) behavioural theory of PD credited both biological and environmental factors surmising that behaviour is shaped through natural development and social interactions. Later, Millon (1990) reconceptualised this theoretical framework of personality shifting to a more evolutionary model. His theory proposed that survival of a living organism depended on its adaptability and capacity to reproduce. Millon (1990) paralleled this theory to personality and hypothesised that PDs served as a means to achieve these aims and fundamentally survive in a hostile environment. As such, PDs could arise as a result of an adaptive or passive attempt at coping. The PDQ differs from the MCMI as it is a diagnostic tool, not based on theory, but on the diagnostic criteria of the DSM.

The 1980s saw a shift away from the once popular psychoanalytical theories, towards a more scientific, testable approach to psychiatry. Interest arose in cognitive behaviour psychology, which could be observed and therefore measured, as well as pharmacological approaches to psychiatric treatment of disorders. As this shift in theory and treatment was being debated, DSM-III (APA, 1980) attempted to avoid any controversy and opted for an atheroetical derived diagnostic manual. This resulted in disorders being primarily descriptive and methodological amendments, including explicit diagnostic criteria and a multiaxial system.

DSM-IV (APA, 1994) moved to an empirical methodology, where a number of disorders were added, deleted, reorganised with criteria amended. The most influential change in the DSM-IV was the inclusion of clinical significance (CS) criterion to almost half the categories. This required that symptoms cause "clinically significant distress or impairment in social, occupational, or other important areas of functioning". The impact of these changes on the PDQ is discussed below. Table 20 presents the different versions of the PDQ and publication year. Although the official PDQ website refers to a third, and revised third edition of the tool, no publications related to these.

4.3 Test Description

The PDQ is designed to assess diagnostic criteria for the PDs described in Axis II of the DSM. A categorical system is used to classify PDs within Axis II, which is further organised into super ordinate clusters based on common underlying themes. Controversy remains in relation to the classification system of PD diagnosis. The proposal for a dimensional model is under debate and discussed within the limitations section (Widiger & Simonsen, 2005).

The latest version of the PDQ is the 4th edition plus (PDQ-4+) (Hyler, 1994). The measure is designed to take between 20-40 minutes and be comprehensible at approximately 13-14 year old reading level. It is a 99 item, self-administered, True/False screening questionnaire. Participants are given descriptions of abnormal behaviours (e.g., "I am often on guard of being taken advantage of") and indicate

Table 20. Versions of Personality Diagnostic Questionnaire

Version	Year of Publication
The Personality Diagnostic Questionnaire (PDQ). Keyed in line with DSM-III criteria.	1983
The Personality Diagnostic Questionnaire – Revised (PDQ-R). Keyed in line with DSM-III-R criteria.	1987
The Personality Diagnostic Questionnaire – III (PDQ-III)	(no information)
The Personality Diagnostic Questionnaire – III Revised (PDQ-III-R)	(no information)
The Personality Diagnostic Questionnaire – IIII (PDQ4)	(1994)
The Personality Diagnostic Questionnaire – IIII + (PDQ4+)	(1994)

whether each description is "generally true" or "generally false" for them. Each of the 99 items corresponds to a single diagnostic criterion for a PD as specified by the DSM-IV. At least one item was developed for each of the diagnostic criteria for each PD. For example, the DSMIV item description of "chronic feelings of emptiness and boredom" corresponds to the PDQ item "I feel empty and bored much of the time".

Total PDQ-4+ score is determined by summing all pathological responses, this is an index of overall personality disturbance. Total score thresholds are based on approximate values from previous versions of the instrument and unpublished studies by Hyler (Hersen, 2004) (see Table 21).

Scoring specific DSM diagnoses is completed separately. A true score on each item of the specific disorder is recorded and indicates a pathological trait, if the threshold is reached or exceeded (for example, a score of four or more paranoid items would indicate) the diagnosis is recorded. However, there is an exception for BPD; to meet the impulsivity criteria, two or more examples must be given to reach the threshold. For ASPD, the threshold for both adult ASPD traits and childhood conduct disorder must be reached before an indication of diagnosis can be made. In DSM-IV, multiple diagnoses are allowed.

Table 21. PDQ Total Score Threshold

Total PDQ Score	Clinical Implications
20 or less	Normal controls
20 – 50	Patients in therapy but without significant personality disturbances
50 or more	Substantial likelihood that the person has a PD

Both the criteria for diagnosing a PD according to DSM-IV and the format of the PDQ-4+ have been amended from previous versions. DSM-IV removed the diagnoses of self-defeating and sadistic PD, as did the latest version of the PDQ. The PDQ-4+ includes passive-aggressive and depressive personality, as well as the 10 PDs presented in the main text of the DSM-IV. Only 24 of the PDQ-4+ items are identical in comparison to those items included in the PDQ-R. Furthermore, none of the items in the PDQ-4+ are reverse keyed and items are no longer grouped according to the disorder. Two validity scales are also included in this edition. The 'Too Good' (TG) scale intends to assess under-reporting of pathological personality traits and 'Suspect Questionnaire' (SQ) scale was designed to identify those who are lying or responding randomly. It can be the case in PD diagnosis questionnaires that traits may be endorsed for items and the threshold for a diagnosis may be met, however the particular pathology may not be considered clinically significant. The PDQ has attempted to account for this. Previous editions included 'Impairment and Distress' (ID) scale, however the latest version (PDQ4+) includes a 'Clinical Significance' (CS) scale. After completing the PDQ4+, the assessor confirms with the assessed that there was no mistake in the items they endorsed before, confirming the trait is pathological, pervasive and persistent and not due to an Axis I or other medical condition.

Only a small number of studies have been published on the PDQ-4+ (Hersen, 2003), which creates difficulty in assessing its psychometric properties. More articles are

available on earlier versions of PDQ so, whilst acknowledging the limitations, a critical analysis of the measure will be conducted by considering literature on all versions of the tool.

4.4 Psychometric Properties

Kline (1986) describes that a good psychological test possesses certain characteristics, including at least interval level data, reliability, validity, ability to discriminate and appropriate norms. The PDQ will be discussed in relation to its psychometric properties.

4.4.1   Reliability

Reliability refers to the extent to which a psychometric tool measures a construct accurately, consistently and with minimal error. Although the use of psychometric tools aims to increase the scientific basis of psychology and reduce the level of error, it must be acknowledged that within every psychometric tool is some level of error (Groth-Marnat, 2005). Cronbach's alpha (Cronbach, 1951) has been referred to as the preferred coefficient in measuring reliability, such that a minimum of .7 is required to represent an 'adequate' test (Nunnally, 1978).

4.4.1.1 Internal Consistency

Internal consistency is a measure of reliability of different items intended to measure the same characteristic. Hyler et al. (1989) posted questionnaires to 4000 Psychiatrists from a membership list of the American Psychiatric Association

identified as having contact with PD clients. They were asked to complete the questionnaire on two patients, one must have significant personality disturbances, the other showing no prominent traits of PD. The Clinical Assessment Forms (CAF; Cook, 1988) to record Axis I and Axis II diagnosis of the patients and the Global Assessment of Personality (GAP; Hyler et al., 1988), to assess overall personality functioning, were also completed. This appears somewhat subjective and was largely influenced by the Psychiatrists choice of patient. In addition, factors affecting administration, such as clinicians training, methodology and test setting, may all affect the validity of the study. Although the sample may seem large and suggest it may be representative of the population, the response rate was 7%. Difference between respondents and non-respondents, and implications of possible differences, is not reported. Hyler at al. (1989) reported reliability coefficients ranged from high for dependent (.83) to low for schizoid (.56). Only paranoid, schizotypal, antisocial, BPD and dependent were found to acceptable internal consistency (a>.7). This suggests that items indicating the other disorders, are not indicative of the same disorder, however the appropriateness of internal consistency as measure of the PDQ is discussed further below.

In the case of the PDQ-R, Trull (1993) examined 51 psychiatric outpatients with regard to 3-month temporal stability of self-report PD scores and reported average internal consistency (mean K = .66). Acceptable internal consistency (k>0.7) was found for schizotypal, dependent, OCPD, BPD and ASPD. This suggests greater homogeneity for these scales and supports Hyler et al. (1989) findings that reported the same disorders, bar obsessive compulsive PD, to have internal consistency.

However, the effects of Trull (1993) eliminating chronic substance users from its sample are unknown.

Fossati et al. (1998) compared the PDQ-4+ to the Structured Clinical Interview for DSM-IV-TR Axis II Personality Disorders (SCID-II) (APA, 1997), in 300 in patients and out-patients. They reported internal consistency to be adequate (mean a=.61). Only borderline, avoidant and dependent scales showed acceptable internal consistency (a>0.7).

In addition, the PDQ-4+ was compared to Longitudinal, Expert, All Data (LEAD) standard diagnosis in 100 patients with a high prevalence of Axis I and Axis II PDs (Willberg, Dammen, & Friis, 2000). LEAD constitutes an expert on the disorder observing the patient over a period of time. Collateral information is gathered from records, family members and professionals involved in their care, providing information on maladaptive behaviours and traits in various contexts (Spitzer, 1983). Willberg et al. (2000) reported internal consistency for the PDQ-4+ to range from .42 to .72. Similar to the findings reported by Fossati et al. (1998), only 3 of the 12 scales were found to have good internal consistency (a>0.7); paranoid, schizotypal and avoidant PD.

Caution should be applied when comparing such findings by Fossati et al. (1998) and Wilberg et al. (2000), with those by Hyler et al. (1989) and Trull (1993), as

different versions of the measure were used in the studies. When considering 0.7 as a cut off value, borderline, dependent, avoidant, schizotypal, paranoid and ASPD were reported as having acceptable internal consistency in at least two of the studies. However, when considering just the PDQ-4+, avoidant was the only disorder found to have acceptable internal consistency across two studies (a>0.7). Schizoid, histrionic and OCPD disorders were reported by both Wilberg et al. (2000) and Fossati et al. (1998) not to meet adequate internal consistency. Clinical implications of these findings suggest that only the disorders, which resulted in good internal consistency, should be used in practice. If this was applied to the PDQ-4+, only one of the ten disorders could be reliably used. Items on the remaining nine disorders are considered to not measure the same characteristic. In clinical practice, that would mean the PDQ-4+ could only be used to detect avoidant traits. In this case, clinicians would have to be querying avoidant to make any use of the tool. As individuals are often diagnosed with more than one PD, clinicians may have to administer additional measures or conduct a semi-structured interview, which negates the aim of the PDQ to be less resource intense.

Internal consistency demonstrates the extent to which individual items intended to measure the same characteristic are actually doing so. However, the individual items that define a characteristic, in this case, a disorder, are devised according to the DSM criteria. DSM adopts a polythetic approach; individuals have to meet a number of, but not all criteria. This results in high levels of heterogeneity. In addition, traits are indicative of a disorder and are not necessarily similar and would explain why different items indicating the same disorder in the PDQ are not reliably

consistent. This could also be understood in the wider context of the debate on current classification of PD. Therefore the error may not be in the PDQ, but in the diagnostic manual. This argument will be expanded later, for now it is noted that the diagnostic items identified by the DSM vary greatly and do describe different personality traits.

4.4.1.2 Test-Retest Reliability

Test-retest reliability refers to the reliability of the test to achieve similar results over multiple completions. The correlation coefficient between two sets of responses is often used as a quantitative measure of test-retest reliability. PDs are, by definition, composed of long-standing, maladaptive personality traits or behaviors (APA, 1987). Therefore, inventories designed to assess PD pathology should show high test–retest reliability and yield scores that are relatively stable over short periods of time.

Hurt, Hyler, Frances, Clarkin, and Brent (1984) reported the one-month test–retest reliability of the PDQ in a sample of 60 mixed gender, psychiatric outpatients. Diagnostic agreement for the two testing occasions was moderate (average kappa = .58). The highest values were obtained for the paranoid, schizotypal, antisocial, OCPD, avoidant, and BPD scales (all kappa's greater than .55). However, the authors did not report correlations between the numbers of criteria endorsed, at each occasion, for each disorder.

Trull (1993) reported adequate test-retest reliability for the PDQ-R with many of the DSM PDs (average kappa = .58). Schizotypal, dependent, OCPD, BPD and ASPD all had adequate test retest reliability (k > .7). Significant decreases in scores across time were observed for avoidant (t=2.10), passive-aggressive (t=2.64) and BPD (t=2.18) scales (p = .001) suggesting these three scales are not sensitive to the enduring requirements for PDs. However, this was consistent with findings from the Minnesota Multiphasic Personality Inventory-2 (MMPI-2) (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989), where 4 scales significantly decreased over time. In addition, fluctuations in scores is expected as situational variables, mood states and Axis I disorders may confound consistency (Widiger, Frances, Spitzer, & Williams, 1988; Trull, 1993). The confounding implications of Axis-I disorders will be discussed later. Millon (1987) reported that avoidant and BPD symptoms are more vulnerable to acute anxious and depressive states, partly explaining the fluctuation in scores on these scales. Trull (1993) reported the mean difference between scores across time was small, indicating state effects were not prominent. Considering that fluctuations in scores on PD scales are expected, Trull (1993) demonstrated that scores on the PDQ-R are in fact relatively stable over a 3-month time period.

4.4.2 Validity

Validity assesses what it is the test is to be accurate about. For the purpose of clinical assessment a test should measure what it is intended to measure and produce useful information. Test accuracy is defined by 'sensitivity' and 'specificity'. Sensitivity is the rate of positive test results among patients with a

particular disorder. Specificity is the rate of negative test results among patients without the disorder. For a reliable measure, these should be near 1.0. Also, the positive predictive power of a test needs consideration. This is the calculation of the probability that a test score accurately indicates the presence of a characteristic or a diagnosis based on some other measure such as a clinical rating (Groth-Marnat, 2005). The higher the power, the more valid the test.

2.2.1   Concurrent Validity

Concurrent validity refers to the extent to which the tool correlates with previously validated measures of the same construct. The rationale behind devising the PDQ was that at the time, no self-report tool existed that directly measured the diagnostic criteria of the DSM (Hyler et al., 1988). However, there are validated semi-structured interviews and self-report questionnaires that intend to measure the same construct or similar traits.

When comparing the PDQ-R, SCID-II and PD Examination (PDE) (Loranger, Susman, Oldham & Russakoff, 1985) with 59 mixed-gender applicants for psychoanalysis, the PDQ-R yielded more patients as having each of the PDs than either of the other tools (Hyler, Skodol, Oldman, Kellman, & Doidge, 1992). For those meeting criteria for at least one PD, the mean number of disorders diagnosed per patients was 3.8 (SD = 2.1) for PDQ-R, 1.9 (SD = 1.3) for SCID-II and 2.0 (SD = .9) for PDE. Hyler et al. (1992) found the chance-correlated agreement between pairs of the three instruments to be modest, ranging from a kappa value of .0 to .68. Significant differences were found between all cluster C PDs and paranoid, BPD and ASPD disorders. These findings suggest that the tools are measuring different

things. Although agreement between tools was relatively poor, this was not indicative of the PDQ-R, as equally poor agreement was found between the SCID-II and PDE.

Hunt and Andrews (1992) reported similar findings in a sample of 40 outpatients attending an anxiety disorder unit. The PDE identified 7.5% of the sample population met criteria for PD, compared with 67.5% by the PDQ-R. This is a large difference and may be useful in understanding the high rates of PD reported in chapter 3. They reported that when compared with the PDE, the PDQ-R had virtually no specificity and very high sensitivity. The mean correlation between profile scores across subjects was 0.17 (SD = .3), suggesting agreement between the profiles of the two instruments was small. Hunt and Andrews (1992) also compared total PDQ-R scores with other personality trait measures (Defence Style Questionnaire, Locus of Control Behaviour Scale and Eysenck measure of neuroticism or trait anxiety) and reported significant correlations (p = .05). They concluded the PDQ-R was functioning as a personality trait measures rather than a tool able to determine diagnoses. How valid the implications of findings from a study where Axis I disorders were being treated and therefore prominent, needs to be noted when considering these findings. However, Hunt and Andrews (1992) report similar findings to Hyler et al. (1992) implying poor concurrent validity.

The PDQ is supposedly constructed directly from DSM diagnostic criterion, so how it has come to simply measure personality traits would need further exploration. In addition, the PDE was designed to be compatible with DSM-III-R, therefore this conclusion cannot be attributed to tools devised on different criteria. The robustness

of the PDE would also need to be determined. The implications of Hunt and Andrews (1992) findings question the capability of the PDQ-R to indicate the presence of PD. This creates further implications in both the practice and research field, where the PDQ is used to indicate the likelihood of a diagnosis. Hunt and Andrews (1992) also question whether the PDQ-R, acting as a self-report measure, holds a bias that participants' are more likely to disclose undesirable traits. However, the poor correlation across patients' profiles would suggest that the tools are in fact measuring different constructs. Such findings have large implication for the use of PDQ and similar tools. Indicating diagnosis of a PD has significant implications for individuals and treatment options, therefore raising ethical concerns. In addition, the use of the PDQ in research could result in inaccurate findings that direct interventions, future measures and patient care.

When compared with other measures of similar intention, such as the MCMI-II, the PDQ-R revealed significant correlations (Wierzbicki & Gorman, 1995). In a nonclinical sample of 113 college students, raw scores for 10 of the 11 corresponding items on the two inventories were significantly correlated (median r = .49, p = 0.05), the exception being the compulsive scale (Wierzbicki & Gorman, 1995). However, the PDQ-R indicated paranoid, BPD and eccentric PDs significantly more frequently than the MCMI-II but reported significantly fewer indications of dependent, histrionic and anxious PD. Firstly, whether these tools are comparable needs consideration. In addition, a longitudinal interview designed to diagnose PD is recommended to identify if differences are a result of an error in one of the tools, and which tool. Although raw scores were in agreement, agreement of categorical assignment of disorders was poor to fair. Kappa coefficients indicated significant agreement

between measures occurring only for the histrionic (.28) and ASPD scale (.27), the anxious (.21) and erratic (.36) clusters and for any PD (.21) (p= 0.05) (Wierzbicki & Gorman, 1995). Wierzbicki and Gorman (1995) presented findings that showed agreement in endorsing traits of personality, but poor correlation when transferring these scores into categories. This suggests inaccuracy in threshold criteria, and supports the argument for a dimensional approach for diagnosis.

Looking at the more recent version of the PDQ, Davison, Morven Leese and Taylor (2001) examined the screening properties of the PDQ-4+ against the SCID-II. They reported agreement between the PDQ-4+ and SCID-II varied, with agreement for any PD as .47; only BPD (.57) and ASPD (.49) exceeded this. BPD was also indicated more often by the PDQ in Wierzbicki and Gorman's (1995) study. The possibility of higher agreement between tools for BPD and ASPD will be discussed in the limitation section of this paper.

Fossati et al. (1998) reported significant correlational coefficients between PDQ-4+ and SCID-II scales, with low agreement for both dimensional and categorical PDs. This suggests the PDQ-4+ and SCID-II measure different personality characteristics, which is worrying if they are both intended to indicate the same disorders. Fossati et al. (1998) reported support for the PDQ's apparent tendency to over diagnoses. Significantly higher scores for all PDQ-4+ scales were found in comparison to corresponding SCID-II scales. In addition, the PDQ-4+ indicated a significantly higher number of PDs (mean = 4.27, SD = 2.87), when compared to the SCID-II (mean = 1.09, SD = 1.04, t = 21.04, p < .001).

Willberg et al. (2000) compared the PDQ-4+ with LEAD standard diagnoses in 100 patients with a high prevalence of Axis I and Axis II PDs. Agreement between PDQ-4+ and LEAD was poor, K values ranged from .05 to .26 for specific PDs. The thorough methodology in the LEAD approach is considered to minimise errors in misdiagnosis (Spitzer, 1983). Thus it would be considered an accurate method to indicate a diagnosis of PD, potentially more accurate than a short, self-reported questionnaire. Such poor agreement between the LEAD method and PDQ-4+ in indicating PD would suggest the inaccuracy of the PDQ-4+ and question its use in such circumstance. However LEAD is based on the clinician findings and therefore has alternative limitations. The CS scale was not administered in this case. The effects of administration need further consideration. However, it is likely that the CS scale would reduce the sensitivity of the PDQ-4+ and possibly improve agreement between such tools as the SCID-II.

In consideration of the above findings, the PDQ shows poor concurrent validity, however poor validity has also been shown between other tools of the same intention (Hyler et al., 1992). This suggests that a true indication of validity will not be possible until a robust measure of PD is identified.

4.4.2.1 Content and Construct Validity

Content validity refers to the extent to which the content of the tool measures the construct under consideration. Whilst construct validity refers to the extent to which it correlates with variables hypothesised to be related to the construction.

The PDQ has face validity; items are a direct translation of the DSM diagnostic criteria into self-report format (Hyler, 1988b). Content analysis was reportedly conducted on the face validity of all items to ensure the item accurately reflected the criterion it purported to measure: however these findings appear not to have been published (Hyler, 1988). When considering validity, it should be noted that the PDQ is somewhat biased towards BPD and ASPD which have the most DSM-III diagnostic criteria, and thus the greatest number of PDQ items. This is of particular interest in a forensic population. BPD (Blackburn, Logan, Donnelly & Renwick, 2003) and ASPD (Singleton, Meltzer, Gatward, Coid & Deasy, 1998) are reported as one of the most prevalent PDs within forensic prison populations. Whether this indicates tools biases towards these disorders, or if these prevalence studies are utilising the PDQ needs further exploration.

Hyler et al. (1988) found a substantial relationship between total PDQ scores of 50 or greater and meeting clinical criteria for a diagnosis of PD. When using clinical diagnosis as a criteria, Hyler et al. (1988) found that a total score of 50 or greater yielded sensitivity of .64, specificity of .83, positive predictive power of .80 and negative predictive power of .68. In contrast, when using the absence of PD as the criterion, a total PDQ score of 20 or less yielded sensitivity of .30, specificity of .94, positive predictive power of .85 and negative predictive power of .59. Hyler et al. (1988) concluded that the PDQ showed it can indicate overall personality disturbance, however not yet that it is able to distinguish between disorders.

Hyler et al. (1988) reported the findings of a pilot study. Total PDQ score showed modest correlation (r = .55, p < .001) with clinician reported GAP scores, and good

correlation (r = .77, p< .001) with the PDQ self-report index of impairment/distress (ID). Hyler et al. (1988) surmised that clinicians can use PDQ scores to indicate the likelihood of a patient having a disordered personality and meeting diagnostic criteria, but it is not capable of indicating a diagnosis of a PD per se. They also suggested it was appropriate for research purposes, in the context of excluding participants with an indication of PD. However, as the tool overestimates, the implications of applying results from the PDQ should be questioned. Hyler et al. (1988) have also reported findings on a five-item ID scale, included in the PDQ. High ID scores highly correlated with total PDQ scores, suggesting these five items could be used as a screening tool. However, accurately predicting the presence of PD with five items seems unlikely. However, as mentioned previously, there was a 93% attrition rate in this study.

Considering PDQ-R, Hyler, Skodol, Kellman, Oldman and Rosnick (1990) reported it has been found to over diagnose the presence of a PD, but could accurately predict absence. Hyler et al. (1992) reported that the sensitivity of the diagnosis generated by the PDQ-R were greater than or equal to .80 for six of the 11 PDs in the definitions of probable, and eight of the disorders according to the definitions of definite. Schizoid, schizotypal and ASPD did not meet the sensitivity cut off. The specificities were in the .6 to .9 range, with schizoid and schizotypal meeting the higher specificity. Hyler et al. (1992) concluded that overall, the PDQ-R indicated many false positives yet few false negatives. These findings were supported by Wilberg et al. (2000) and support the implementation of CS scale in the PDQ-4+, thus controlling the rate of false positives.

Fossati et al. (1998) reported that when using DSM-IV threshold scores for categorical diagnosis, all the PDQ-4+ personality scales, except narcissistic, showed poor agreement values (p < .05). However, when using diagnostic threshold criteria different from the DSM-IV, without stating what was used, agreement with diagnostic criteria improved, but values were still in the poor to moderate range. Fossati et al. (1998) published findings of high rates of false positives and low rates of false negatives, consistent with previous studies. Receiver Operating Characteristics (ROC) analysis was performed on PD scales (Fossati et al. 1998). paranoid, schizoid, histrionic, narcissistic, BPD and avoidant were found to have good discriminatory capabilities (w>0.7) and dependant and ASPD, to have excellent discriminatory capabilities (w>0.8). This demonstrates PDQ can differentiate between dimensional scores, but not so well on categorical scores or threshold criteria for PD. This supports the dimensional proposition for diagnosis.

Examining the screening properties of PDQ-4+, Davison et al. (2001) found that if the PDQ-4+ was used to generate a total score, it had an overall adequate measure of accuracy according to the ROC curve (0.83). This corresponds to Fossati et al.'s (1998) findings. Hyler et al. (1988) proposed a total score of 50 or over indicated a disorder. However Davison et al. (2001) found that when using this threshold in comparison to SCID-II diagnosis, the PDQ failed to identify 29 of the 49 diagnoses the SCID-II inferred. Using a sensitivity-specificity plot and logistic regression to assess various cut-off scores, total score of 25 or above yielded near optimal sensitivity and specificity and reported to only miss 11 of the 49 disorders identified by the SCID-II. This score was considered to be a neutral choice that maximised the sum of both sensitivity (.75) and specificity (.74) (Davison et al., 2001). Davison et

al.'s (2001) suggestion of lowering the threshold are similar to those of Fossati et al. (1998) that suggested 28 as the threshold and Willberg et al.'s (2000) score of 30 as optimal (sensitivity .73, specificity 1.0).

The above findings imply that the threshold for indicating the presence of a PD should be reduced from Hyler et al.'s (1988) suggested total score of 50, for a more valid measure. However, considering usual criticism that PDQ, over diagnoses, you would assume this would not be the case with such a high threshold. However, it appears PDQ over diagnoses on individual traits but not on the total score generated. Also, if the CS scale is administered, this will control for a proportion of over diagnoses.

4.5. Limitations of the PDQ

Limitations of the PDQ cannot be adequately addressed without understanding limitations in the classification and diagnosis of such disorders. Since the first publication of DSM in the 1950's, knowledge and understanding of human functioning has developed, aided through advances in technology, such as brain imagining techniques and new information in neurology, genetics and behavioural science. With this growth, theories of the mind and behaviour have evolved and with it so has DSM in publishing revised versions. Currently, a new version, DSM-V, is being constructed, reportedly guided by research (APA, 2011).

Possibly most pertinent to PD diagnosis is DSM-V's proposed approach to assessing disorders dimensionally. This considers PD traits as variants of basic personality traits that fall along a continuum and where indistinct boundaries exist between normal and

abnormal personality (Kass, Skodol, Charles, Spitzer, & Williams, 1985; Widiger & Simonsen, 2005). This approach enables rating both the presence and the severity of the symptoms, such as "very severe" through to "mild". This facilitates tracking patients' progress in treatment and identifying symptom reduction. PD clusters may also benefit from being converted into broad personality dimensions (Deary, Peter, Austin, & Gibson, 1998), which would be more attuned to the many dimensional models of general personality functioning such as the three-factor models (Eysenck & Eysenck, 1975) or the 'Big five' five-factor model (Costa & McCrae, 1992). With the proposed changes to DSM, it is hoped that comparable research will be yielded, something that proved problematic in critique of the PDQ. Reliable diagnoses are necessary to effectively study risk factors, symptoms and effective intervention for PD and mental illness.

Typically, PDs are diagnosed by clinicians, often with the aid of diagnostic tools designed as semi-structured interviews, such as LEAD. Interpretations of these tools are subjective. Low interdiagnostic agreement is generally reported for individual clinicians using interview information as their diagnostic material (mean k=.25; Perry, 1992). Also, little agreement has been found between structured assessments such as the MCMI, MMPI and structured interviews (Miller, Steiner & Parkinson, 1992). Groth-Marnat (2005) reported when critiquing the MCMI, there is no "gold standard" for comparison, which also applies to PDQ. The majority of studies cited in this critique used the SCID-II as a baseline. However, the SCID-II has itself received conflicting publications on its reliability (Maffei et al., 1997; Williams et al., 1992). Therefore, it is not possible to conclude that the PDQ has

been adequately tested for reliability with no reliable base line from which to compare it.

A number of studies reported on the internal consistency of various versions of the PDQ (Fossati et al., 1998; Hyler at al., 1989; Trull, 1993; Willberg et al., 2000), however only a handful of scales for each version were reported to have adequate internal consistency (a>.7). Fossati et al. (1998) and Willberg et al. (2000) both published reliabilities findings on PDQ4+. They each reported three scales met adequate internal consistency (a > .7), however only avoidant was identified by both studies to fall into the adequate margin. The largest study was conducted by the author of the tool (Hyler et al., 1989) therefore, bias in publication of information should be questioned. Willberg et al. (2000) used a longitudinal methodology in their study suggesting these findings may be more robust and accurate. There are clinical implications of these findings and it questions the application of the PDQ in both clinical practice and research. However, as mentioned previously, the polythetic approach to PD diagnosis may confound the results of such a measure of reliability in measures such as the PDQ.

Moderate to poor test-retest reliability was reported for both PDQ (Hurt et al., 1984) and the PDQ-R (Trull, 1993; average kappa = .58). However, Trull (1993) reported significant but small decreases in scores for only three scales, including avoidant and BPD. These were identified by Millon (1987) to be more sensitive to mood states and therefore fluctuating scores. These fluctuations in scores were consistent with the MMPI-PD scale (Trull, 1993). These were the only studies

found that published test-retest findings. More studies in this area need to be conducted before robust conclusions can be drawn. However, when considering that the PDQ is intending to measure PD, which criterion for diagnosis is that it has been present for a significant amount of time, then it is vital that such tool show adequate test-retest reliability.

Whilst acknowledging the impact of state variables it is also important to be aware that some researchers have suggested that Axis I symptoms may confound the results of the PDQ (Zimmerman & Coryell, 1990), however Hunt and Andrews (1992) disagree and state that no evidence was found in their study of this. Zimmerman and Coryell (1990) looked at diagnosing PD in a community sample of 697 relatives of psychiatric patients and healthy controls who completed both the Structured Interview for PD (SIDP) and the PDQ. Zimmerman and Coryell (1990) reported discrepancies between the PDQ and the SIPD dimensional scores, which were significantly associated with current levels of depressive symptoms and PDQ lie scale scores. However, Hunt and Andrews (1992), using a sample of 40 subjects attending an anxiety disorder unit, reported that total PDQ-R scores were not significantly associated with Axis I treatment diagnosis (df = 3, F = 0.52, p > .5). Whilst Zimmerman and Coryell (1990) had a larger sample than Hunt and Andrews (1992), different versions of the tool were used, questioning the validity of conclusions that can be drawn. It also appears that Hunt and Andrews (1992) did not have a control sample for comparison and their sample, receiving treatment for anxiety disorder, were likely to have Axis I present.

Many tests of validity compare PDQ to other semi-structured interviews measuring the same construct or self-report measures designed to measure similar, but not identical, features. Problems emerge with these comparisons tools of choice. Firstly, the PDQ cannot be expected to replace diagnosis of PD from in-depth semi-structured interviews. However, it has been used greatly in research for this purpose (Guy, Poythress, Douglas, Skeem & Edens, 2008; Samuel & Widiger, 2011). Hyler et al. (1989) acknowledged this in publication of the first version of the tool. The latest version includes the CS scale and requires clinicians to meet with patients when PDQ results indicate the presence of a PD. No studies were identified which had considered the validity of the PDQ and had taken the CS scale into account. Difficulties also arise when comparing the PDQ to other self-report questionnaires, as they are not all constructed with the same theoretical underpinnings.

Further to this, the MCMI has been criticised by Flynn, McCann and Fairbank (1995) to over diagnoses and over pathologises PD. This criticism has been paralleled in the PDQ (Davison et al., 2001; Hunt & Andrews, 1992; Hyler et al., 1992). Hyler et al. (1988) suggested a threshold total score of 50 for indication of a PD; however the measure of sensitivity was poor, which lead them to conclude that PDQ has not demonstrated ability to distinguish between disorders. However, the significant attrition rate in this study questions its applicability. Davison et al. (2001), Fossati et al. (1998) and Willberg et al. (2000) findings imply that the threshold for indicating the presence of a PD should be reduced from Hyler et al.'s (1988) and recommended a total threshold score of between 25 and 30 points for higher test validity. In addition, if the CS scale is administered, this will control for a proportion of over diagnoses.

The question has been raised whether personality assessments measure PD or in fact personality style (Craig, 1999). Some argue that the issue of whether a PD is disordered enough to cause difficulty across all areas of functioning should be decided by a practitioner and not left to the realms of a self-reported measure (Groth-Marnat, 2005). Fossati et al. (1998) found evidence that may suggest the PDQ-4+ and SCID-II measure different personality characteristics. In addition, Hunt and Andrews (1992) surmised that the PDQ-R was functioning as a personality trait measures as opposed to a tool able to determine PD diagnostic criteria. Interestingly, Fossati et al. (1998) and Wierzbicki and Gorman (1995) reported results, which demonstrated agreement between PDQ and SCID-II criteria and total scores, however this was lost once dimensional and categorical allocations were made. This perhaps suggests that the error with the PDQ may not be in its individual items, but with its allocation of categories and indication of disorders.

Despite the literature available on the PDQ, reliability and validity questions remain. There appears to be no predictive validity research. Hyler (1988) reported that each items went through a number of revisions and was tested on a controls and patients, however details of this are not published. As the PDQ items are constructed directly from the DSM criteria, face validity is assumed. However, in order to turn criteria into questions, additional wording needs to be added, possibly affecting face validity. Also, does one question adequately capture the presence or absence of each diagnostic criterion, or is there a need for multiple questions for each criterion. In addition, the tool is considered biased toward indicating BPD and ASPD disorders, as more criteria exist in the DSM for these categories. The weight of such bias should be further explored if the PDQ is to evolve with the fifth version

of DSM. The PDQ has shown reliability as a screening tool to indicate whether an individual should be further assessed by a clinician for the presence of PD. However, the ability of the PDQ as a tool to identify specific PDs has not been proven (Hyler et al. 1989). Lengthening the tool may improve accuracy of indicating specific disorders if multiple questions relate to each criterion. Scoring could perhaps indicate the presence of that trait, if say a majority or identified threshold of questions is indicated for each criterion.

Errors in hand scoring objective personality measures are further limitations of tools such as the PDQ. Allard, Butler, Faust and Shea (1995) found that in the PDQ-R, errors were found in at least 53% of hand scored inventories and sufficient error to alter clinical diagnosis was found in 19% of these (total of 43 inventories). As far as I am aware there are no other studies that have looked into hand scoring of comparative tools, such as the MCMI or MMPI. However, Simons, Goddard & Patton (2002) conducted an evaluation of hand scoring error rates in seven different psychometric measures using occupational psychologist and both trained and supervised clients to self-score measures. Although none of the measures looked at PD, Myers Briggs Typology Indicator (MBTI) (Myers, 1987) a measure of personality, and a clinical measure of depression, Beck Depression Inventory II (BDI-II) (Beck, 1996) were included. Simons et al. (2002) found that across all instruments, both client self-scoring error rates (t=27.81, p<.001) and psychologist scoring (t=9.50, p< .001) were significantly greater than zero. Significantly lower error rates were reported for psychologist scoring, (t = 20.71, p< .001) however error rates were still reported to be higher than 5% on a number of the tools. When considering incorrect profiling, 9.3% of client self-scoring and 2.5% of

psychologist scoring resulted in inaccurate profiles. Self-scorer errors could be predicted based on the complexity of the test for all seven measures; however this was not true for psychologist scoring. The findings of this study result in huge implications for the many hand-scored measures used in practice. Computer scored measures may control for this.

Gender biases should also be considered when evaluating such a tool. Compared to the MCMI-II and MMPI, the PDQ-R items evidenced the least gender bias. Only one PDQ-R item, within the narcissism scale, met all four criteria for gender bias, compared to four MMPI items and eight MCMI-II items (Lindsay & Widiger, 1995). However, it should be noted that the MCMI and in particular the MMPI are considerably longer, possibly explaining the greater number of items meeting criteria for gender bias. However, Wierzbicki and Gorman, (1995) conducted a multivariate analysis of variance and reported no significant differences in the mean scores of any scales of the PDQ-R according to gender (F = 1.40). What is not clear is whether a gender bias exists in the diagnostic criteria for PD or the PDQ per se. Further research into gender bias in both diagnosis of PD and the tool in question is recommended before robust conclusions can be drawn in this area. What is known is that certain disorders are diagnosed disproportionally in males compared to females (Maier et al., 1992).

4.6.   Conclusion

Recognition should be given to the evolution of the PDQ in its attempts to stay current with each new edition of the DSM. However, the downside of this comes when attempting to evaluate the many versions of the tool, resulting in limited

comparable research. The PDQ cannot be criticised for lacking face validity, as each item corresponds directly to each diagnostic criteria outlined in the DSM. Therefore, when using the DSM as a base rate, it should be a valid measure. However, no comparable measure has been identified which does not come without its own reliability and validity limitations. In addition, when evaluating the PDQ, the criterion is often for its ability to diagnose PDs, when its intention is as a screening tool for the purpose of indicating recommendations for further diagnostic assessment (Hyler et al., 1988). Further to this, the PDQ has reaped much criticism in its tendency to over-diagnose disorders, however implementation of the CS scale should account for this, a scale that has been overlooked in research. The limitation with this scale is the additional time and resource demands.

Further recommendations are suggested for the use of PDQ. Firstly, it should not be used to indicate a definite diagnosis of a disorder, which should be left to a capable clinician. It can be used to indicate the possibility of a diagnosis but may not be particularly reliable at indicating specific disorders, only overall disturbances. This raises concerns about its usefulness to clinicians, however it should be remembered that there are wider concerns in DSM overlap and heterogeneity of disorders. We wait in anticipation to see if DSM-V will make significant amendments to this area.

In terms of research, the inclusion of the CS scale should be evaluated for increased accuracy of identifying disorders and the implications of this additional scale. When considering research, the true intention of the measure should be recognised. In addition, the baseline of comparison should be a reliable and valid indication itself.

Whether the PDQ will evolve with the next version for the DSM is not known. With improvement to the criterion it is purported to measure, it will be of interest to see if the reliability of the measure improves. Through reviewing the literature, it raises the question of whether the PDQ is a less reliable tool than others of the same intention, or has simply attracted more negative attention. In a brief review of other tools, it appears that these do not come without reliability concerns of their own. The significance or degree of concern relative to PDQ is not known. The PDQ like any psychometric measure is valid for use only in appropriate populations, and interpretation may perhaps be limited to the research base. Most importantly, the measure should only be used within the context it is designed for. For example, it would be inappropriate for a professional to use the measure in isolation to arrive at a clinical diagnosis.

CHAPTER 5.

DISCUSSION

5.1. Aims of the Thesis

This thesis aimed to consider PD in the context of a forensic population. Firstly, it wished to identify from the literature if there was a clear association between PD and types of offending behaviour. The intention was that if a link could be identified, it may develop understanding as to what factors contribute to certain types of offending. For example, PDs characterised by impulsivity (e.g., ASPD and BPD), may be more at risk of committing crimes that are understood to be conducted on the spur of the moment, such as a street robbery or assault. Alternatively, those disorders characterised by low empathy and high self-regard (e.g., narcissistic) may indicate a style of offending with little regard for victims. Such personality traits may result in an offender whose crime may be more likely to involve victims, as they may not avoid victim contact and disregard the effect on the victim. These are just a few of the questions of the influence PD may have on offending behaviour. This thesis aimed to explore such questions further.

Following this, the thesis wished to investigate the prevalence of PD within a forensic population. The intention was to firstly ascertain the rates of PD within a prison environment. PD offenders have long been considered a difficult population, not only to treat, but also in terms of *how* to treat (Howells et al., 2007; Warren et al., 2003). Further to this, the intention of this thesis was to examine if a TC prison may be an effective intervention to reduce PD traits in a forensic population. Psychosocial factors, possibly contributing to the development of PD and effective intervention,

measured by a clinically significant change in psychometric data were also explored. There is a wealth of literature that considers psychosocial, or risk factors, associated with the development of PD (Coid, 2003; Golier et al., 2003; Johnson et al., 2001); however there is less that has considered the link between these variables within a forensic population. Hamilton et al. (2002) considered the impact of repeat victimisation within a forensic population, but not a PD forensic population. This thesis aimed to explore the relationship between both single incidents of psychosocial factors and the accumulation of such factors on both PD and effective intervention in a TC prison. Following this, the mediating effects of PD on psychosocial factors and the outcome of intervention were considered.

This thesis was placed in the context of the critique of a psychometric tool used to indicate the diagnosis of a PD. The intention of this chapter was to highlight not only the current shortcomings of PD diagnosis but also the implications of tools purporting to do so.

5.2. Main Findings Relevant to the Literature

5.2.1 Chapter 2. The Association between PD and Offence Typologies

Chapter two compromised a literature review following a systematic approach. A total of nine studies were reviewed. Individual studies largely indicated significant findings in relation to PD and association with specific offending groups. For example, sexual offenders were significantly more likely to meet diagnosis for PD compared to non-sexual offenders. Further to that, avoidant, schizoid, dependent, obsessive-compulsive, BPD and depressive PD were more frequently diagnosed in sexual offenders when compared to non-sexual offenders or child molesters when compared

to rapists. ASPD and narcissistic PD were significantly more frequently found in violent offenders when compared to sexual offenders. However, due to heterogeneity in the methodologies of included studies, overall comparison of findings from the studies was difficult.

Most of the studies categorised their offending groups differently to one another. Despite the majority of the included studies being interested in sexual offenders and associated PD, the categorisation of sexual offenders was not wholly comparable. Some studies compared child molesters with paraphilia to those without paraphilia, whilst other studies compared mentally disordered sexual offenders, to both non-mentally disordered sexual and non-mentally disordered violent offenders. It is recommended that additional studies be conducted using comparative groups of offenders. With the implementation of DSM-V in 2013, and the restructuring of categorisation of PDs, this may aid a renewed interest in the domain. However, it is noted that due to previous amendments to DSM, only papers since 1993 were included in the review, which may have further limited the inclusion of papers and diversity of research populations.

Howells et al. (2007) called for the need for greater understanding between the functional link of PD and offending populations. This is necessary to effectively design and deliver intervention. This review considered there would be telling information pertained from identifying a link between personality and specific offending behaviour; however the research study indicated that perhaps the focus on treatment of offending population should move away from outcome behaviour and focus on the developed schemas.

5.2.2 Chapter 3. Contributing Factors to Successful Intervention of PD in a Therapeutic Community Prison

The third chapter incorporated the research study of PD offenders within a TC prison. As has been mentioned previously, offenders whose PD is considered to be associated to their level of risk, particularly if considered to be high risk, encounter barriers to intervention and the Ministry of Justice are at times at a loss as to how to effectively treat these individuals (NIMH(E), 2003). Prison based TC's are a minority within the English penal system, however this study demonstrated that not only do they accommodate a high proportion of PD offenders, but they also show promise at being able to offer an effective intervention for such individuals, based on reducing PD traits.

Clinically significant reduction in personality traits post intervention (measured by the EPQ-R, CFSEI and HDHQ) were reported. However, further to this, there appeared to be a pattern of clinically significant change in specific PD traits, categories and clusters, post intervention. Those traits considered typical of PD criteria were shown to significantly reduce. For example, within the cluster B disorders, a reduction in factors such as criminality, impulsivity and extrapunitive hostility were reported. However, for the cluster C disorders items, an increase in self-esteem and a reduction in items such as psychoticism were reported. These findings suggested that the unique approach of Grendon as a TC prison can be successful with such a population. However, the process of what goes on at Grendon and the explanation for these findings was not established in this research. Further to that, no data in regard to reoffending or reconviction was collected. Therefore the outcome in regard to reduced offending behaviour cannot be established.

If we draw comparisons with the preliminary findings from chapter 2, some interesting assumptions can be discussed. Firstly, chapter 2 described ASPD and narcissistic PD, which fall within the B cluster to be linked to violent and non-sexual offending. If we consider the traits that were reported in chapter 3 as reduced post intervention in a TC (i.e., impulsivity, criminality and extrapunitive hostility) we may say these traits are features that we would associate with typical violent criminality, in particular impulsivity. In contrast, sexual offenders were found to significantly more frequently endorse cluster A and C disorders, including avoidant, schizoid, dependent and OCPD, than non-sexual offenders. In chapter 3, an increase in self-esteem was linked to these PDs. If sexual offenders have been linked to PDs that show an increase in self-esteem post intervention in a TC, some tentative assumptions could be drawn from this. On one hand, sexual offenders with increased self-esteem could become more confident to form socially acceptable and well-adjusted romantic relationships from which to derive sexual please. Alternatively, this confidence may be used to seek more victims or permission to re-offend believing they deserve satisfaction or personal gain.

The exception to these findings was BPD. BPD individuals are characteristically impulsive, therefore you may expect them to fall within the violent and acquisitive offenders. However, the studies included in the systematic review reported BPD to be significantly more common in sexual offenders. BPD was reported by many studies to be linked to adverse childhood experiences (Bandelow et al., 2003; Johnson et al., 1999; Zanarini et al., 1997), including sexual abuse, and the research reported in chapter 3 supported this. Although the majority of victims of abuse do not go on to abuse others, there is a suggestion that perpetrators of abuse are more likely to have

been abused. Therefore, these results may support a tentative assumption that it may be childhood factors, in particular sexual abuse, which is associated with sexual offending, but that this may be mediated by BPD. As stated, this is based on supposition, further exploration into this may be of interest.

Grendon does not offer one-to-one intervention, yet despite this it adopts an approach that may be considered unique to each individual. Each individual is encouraged to address their own treatment targets within a group setting, for some these maybe related to sexual offending, for others violent offending. Some individuals may have a history of committing crime on the spur of the moment, whilst others may be calculative and think through their crimes before committing them. This demonstrates the breadth of the population at Grendon. Mainstream prisons run specific groups for specific offenders or presentation of behaviour (e.g., Sex Offender Treatment Programme for sexual offenders and Cognitive Self Change Programme for violent offenders). Grendon appears to amalgamate all these offences into its one treatment approach; so what is it about this prison based TC which can achieve positive outcomes?

Perhaps it is the sense of community that may bring with it a sense of belonging, self-worth and identity. With this established bond, where individuals are challenged about their behaviour and shared their own stories of victimisation, do they start to develop empathy or compassion for others and understand a victim's perspective? Is it the opportunity to share 'their story' of victimisation, abuse, abandonment, which isn't available in mainstream prison populations? The questions remain unanswered in this study and largely in the literature surrounding Grendon. Grendon is the only TC

with evidence published to demonstrate it's effectiveness with PD (Warren et al., 2003) but, how and why this establishment is effective is less clear. It is possible that it is the unique culture it creates or the particular staff approach and ethos. In addition, questions remain as to whether attempts to replicate it would be successful. Perhaps it is the uniqueness that is often referred to at Grendon that is attributed to its success. Furthermore, the DSPD programme has now been decommissioned in favour of a new 'offenders with personality' disorder strategy. The personality disordered offender population is a shared responsibility of the National Offender Management service (NOMS) and the NHS. It is proposed that there will be an improvement in early identification of PD and access to treatment, including prison based TCs (DoH & MoJ, 2011).

The use of RCTs to measure treatment effects at Grendon have been suggested, but with it come ethical concerns, potential bias and the question of how feasible it would be (Campbell, 2003). Withholding what is to be considered to be effective treatment has huge implications for an individual, especially one in prison and whose risk and chances of release is dependant on it. Despite this, greater consideration of how Grendon can be measured as an effective intervention in this culture of 'what works' is needed. Reconviction studies have been conducted (Marshal, 1997; Newton, 2000; Taylor, 2000). However, some consider that it is the more subtle changes in behaviour and attitudes that demonstrate the true efficiency of a TC (Genders & Player; 1995; Gunn & Robertson, 1982). Further exploration of these processes would be useful to understanding how Grendon is successful in its intervention with PD offenders and whether similar approaches could to be applied within the larger prison system.

However, it is recognised that those transferring to Grendon from mainstream prisons are displaying a level of motivation, hopefully with the intention to reduce their criminal behaviour and attitudes. This is likely to impact the successful outcome of intervention. However, those arriving at Grendon may not always be motivated for the right reasons, as it can be viewed in the penal system as an easy establishment to 'spend your days' as such. However, once they arrive, it is not considered to be an easy place and often prisoners face difficulties they have never encountered previously, such as engaging with sexual offenders (often located on vulnerable prisoners wings in mainstream prisons) and hearing within group sessions the details of their sexual offending.

In summary, this research has specifically looked at a PD population within a prison based TC. It has identified that Grendon is able to demonstrate a significant reduction in disordered or maladaptive functioning from prisoners time of entering to leaving. Further to this, it has shown that this is possible in a population where the majority meet criteria for a diagnosis of PD traits. Notwithstanding this, the success with PD offenders appears to be specific and directed at those traits considered descriptive of the disordered personality, such as impulsivity in ASPD offenders. However, there is certainly a need for future research into how Grendon may successfully treatment PD traits and whether this approach can be implemented in other settings.

Similarities in Coid et al.'s (2003) model of developmental risk factors for PD in high-risk forensic populations and findings from the current research can be drawn. This support for Coid's (2003) model in wider forensic populations is informative for the literature in this area and may direct future intervention. This knowledge would

help to inform understanding of the development of PD, including risk factors associated with it. However, most importantly, it may guide future intervention aimed not only at adult offenders, but also preventative strategies introduced in early childhood.

5.2.3 Chapter 4. Critique of the Personality Diagnostic Questionnaire (PDQ) (Hyler, 1988)

The critique of a psychometric used to identify PD features and more specifically, the tool used within this research study, is beneficial to understanding the limitations of not only this paper, but also of diagnosing PD per se. The PDQ has been criticised for its poor validity at being able to identify and diagnose PD. However, the PDQ never advocated that it was able to diagnose PD, only indicate where further investigation of a possible diagnosis be recommended. Further to this, the PDQ is a diagnostic tool, aligned to criteria outlined within the relevant DSM manual. The criticisms that the PDQ received were in fact aligned to criticisms of the diagnosis criteria and structure of PD. However, the PDQ was also found to overdiagnose disorders. The implications a false diagnosis may have for the individual are huge and can have long standing, negative consequences.

These short fallings of PD diagnosis have long been recognised, resulting in publication of DSM-V. Vast revisions to the current process and criterion for diagnosis of a PD are expected. The understanding is that PD will be based on a continuum where traits are better described. This approach is expected to see vast revisions to the current diagnostic system and with it, measures such as the PDQ as it is, are likely to come obsolete. PD will continue to require diagnosis by a clinician,

but perhaps the subjectivity behind this will diminish. Notwithstanding this, whether psychometric tools will be designed to fit in with the new approach, and if it improves the reliability and validity of them, is yet to be seen.

5.3. Thesis Strengths and Limitations

Despite a plethora of literature on offending behaviour and PD, this thesis was successful at identifying gaps in the knowledge and exploring these areas. Firstly, there had been research interest into PD and offending groups, however there was little reported consensus into what this had shown or how it had informed the literature. Unfortunately, due to the heterogeneity of included studies, conclusive results could not be drawn. However, saying this, a pattern in the findings did emerge, with sexual offenders endorsing more PDs than comparison groups. Further to this, specific PDs were frequently found in sexual offender groups compared to others, particularly avoidant and schizoid. Further research may wish to focus on one particular offence type and perhaps place less restriction on other inclusion criteria to draw together more comparable studies.

The research study utilised retrospective data. Although there were advantages to this, as a wealth of information, which would have been extensively time consuming for one individual to collect alone, was available for analysis, there were additional disadvantages. This information did not always provide the specific detail or depth of knowledge that was required. For example, improvement in PD functioning was measured through psychometrics that were not necessarily designed for this specifically. However, PD, in its current diagnosis system, does not easily allow for a reduction in traits to be measured, creating further difficulty in this research.

It is acknowledged that with the awaited change to PD diagnosis, aspects of this thesis may become superseded. However, it is considered that it has successfully contributed to a gap in the literature of the treatment of PD offenders in a prison based TC. The result of this study has identified future research areas and showed potential for effective intervention for this group of offenders.

5.4. Application of Findings

This thesis has shown that PD offenders are in abundance within a TC prison. Further to this, that a reduction in personality features, considered indicative of specific disorders are achieved in this setting. This implies the success of a TC approach to intervention of this offending group. Application of a TC construct maybe beneficial within mainstream prisons and secure settings for such individuals presenting with these needs. If the focus of intervention should move away from targeting the behaviour or outcome, and focus on the processes within an individuals functioning that result in the behavioural outcome. Encouraging a community model within treatment settings may provide empowerment and a sense of identify and belonging. These factors maybe what such individuals require in order to choose prosocial behaviour and gain motivation to do so. In addition, whether the TC success in offering a group treatment environment, yet meeting the therapeutic needs of the individual could be applied more within the manualised programmes in mainstream prisons is a questioned that needs to be considered. However, perhaps it is the manualised concept which contributes to the lack of effective intervention witnessed within prisons. It is unknown whether a move away from these manuals would see an improvement in outcome data, or simply a decline in faith that intervention is being constructively facilitated. This research has identified that treatment of PD offenders

maybe successful within a TC based environment or model, however there remain pertinent questions of what it is a TC does to demonstrate a reduction in traits and whether this can be applied in other forensic settings.

5.5. Future Research

The findings of this thesis were largely tentative and as a result have identified areas for future consideration in this topic area. Evaluation of treatment programmes often looks at outcome measured by reoffending or reconviction rates. Although such rates are important with the population of interest, it is questioned whether these help us understand the treatment processes that do or don't work and those it may or may not work for. Further to this, it is questionable whether reoffending rates a true reflection of therapeutic outcome. They leave open the question as to how many individuals reoffend without being reconvicted or disclose doing so.

In conclusion, Howells et al. (2007) called for a better understanding of the functional link PD has on criminal behaviour. Previous research conducted at Grendon has demonstrated lower reconviction rates in outcome studies (Marshall, 1997; Taylor, 2000; Newton, 2000). This research has implied that PD traits are effectively treated and produce clinically significant difference in personality features as a result of intervention in a TC prison. However, what is needed from future research is to combine these research areas. Measuring PD dimensionally will aid this. Following this, identifying features of personality which link to offending behaviour, and measuring the effectiveness of a TC prison environment at treating these, is recommended. Such research is likely to require significant resources and stages of research. Should significant findings be reported, this would need to be replicated on

a large scale. There exists other prison based TCs within the UK and worldwide. Identifying whether similar treatment effects are found across these sites may indicate whether treatment outcomes can be replicated or if, in fact, there are specific features of individual establishments that contribute to treatment outcomes. The implications of such findings would hope to benefit not only the individual offender (access to effective intervention) but also society in general who can be reassured by the knowledge that such a concerning population are receiving effective intervention to reduce risk of future offending.

REFERENCES

Adler, G. (1985). *Borderline Psychopathology and its Treatment*. New York: Jason Aronson.

Ahlmeyer, S., Kleinsasser, D., Stoner, J. & Retzlaff, P. (2003). Psychopathology of incarcerated sex offenders, *Journal of Personality Disorders,* 17 (4), 306-318.

Allard, G., Butler, D., Faust, D. & Shea, M. (1995). Errors in handscoring objective personality tests. *Professional Psychology,* 26, 304-308.

Alwin, N., Blackburn, R., Davidson, K., Hilton, M., Logan, C., & Shine, J. (2006). *Understanding Personality Disorder: A Professional Practice Board Report by the British Psychological Society*. Leicester, UK: The British Psychological Society.

American Psychiatric Association. (1952). *Diagnostic and Statistical Manual of Mental Disorders*. Washington, DC: Author.

American Psychiatric Association. (1968). *Diagnostic and Statistical Manual of Mental Disorders (2nd ed.)*. Washington, DC: Author.

American Psychiatric Association. (1980). *Diagnostic and Statistical Manual of Mental Disorders (3rd ed.)*. Washington, DC: Author.

American Psychiatric Association. (1987). *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed. Revised). Washington, DC.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th edn). Washington, DC.

American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders (4th ed., Text Revision)*. Washington, DC: Author.

American Psychiatric Association. (2011). *DSM-V Development*. Retrieved July 15th 2011, from www.dsm5.org.

Aromaki, A., Lindman, R. & Eriksson, P. (2002). Testosterone, sexuality and antisocial personality in rapists and child molesters: A pilot study. *Psychiatry Research,* 110, 239–247.

Bandelow, B., Krause, J., Wedekind, D., Broocks, A., Hajak, G. & Ruther, E. (2005). Early traumatic life events, parental attitudes, family history, and birth risk factors in patients with borderline personality disorder and healthy controls. *Psychiatry Research*, 134, (2) 169-179.

Baron, R., & Kenny, D. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.

Bateman, A. & Fonagy, P. (2000). Effectiveness of psychotherapeutic treatment of personality disorder. *The British Journal of Psychiatry*, 177, 138-143.

Battle, J. *Culture-free self-esteem inventories*. 2nd ed. Austin, Texas.

Beck, A., Steer, R. & Brown, G. (1996). *Manual for the Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation.

Birtchnell, J. & Evans, C. (2004). The Person's Relating to Others Questionnaire (PROQ2) *Personality and Individual Differences, 36*, 125-140.

Birtchnell, J. & Shine, J. (2000). Personality disorders and the interpersonal octagon. *British Journal of Medical Psychology*, Volume 73, Issue 4, pages 433–448.

Blackburn, R. & Fawcett, D. J. (1996). *Manual for the Antisocial Personality Questionnaire*. Unpublished manuscript, University of Liverpool, UK

Blackburn, R. (2000). Treatment or incapacitation? Implications of research on personality disorder for the management of dangerous offenders. *Legal and Criminological Psychology*, 5, 1–21.

Blackburn, R., Logan, C., Donnelly, J. & Renwick, S. (2003). Personality disorder, psychopathy, and other mental disorders: Comorbidity among patients at English and Scottish high security hospitals. *Journal of Forensic Psychiatry and Psychology*, 14, 111–137.

Bogaerts, S., Daalder, A., Vanheule, S., Desmet, M., & Leeuw, F. (2008). Personality disorders in a sample of paraphilic and nonparaphilic child molesters. A comparative study. *International Journal of Offender Therapy and Comparative Criminology, 52(1)*, 21-30.

Bowlby, J. (1988). *A Secure Base. Clinical Applications of Attachment Theory*. Routledge, New York, USA.

Butcher, J. Dahlstrom, W. G., Graham, J. R., Tellegen, A, & Kaemmer, B. (1989). *The Minnesota Multiphasic Personality Inventory-2 (MMPI-2): Manual for Administration and Scoring*. Minneapolis, University of Minnesota Press.

Caine, T. Foulds G. & Hope, K. (1967). *Manual of the Hostility and Direction of Hostility Questionnaire (HDHQ)*. University of London Press, London.

Campbell, S. (2003). *The Feasibility of Conducting an RCT at HMP Grendon*. Home Office, Online Report, 03/03.

Church, T. (2001). Personality measurement in cross-cultural perspective. *Journal of Personality*, 69 (6), 979-1006

Claussen, A., & Crittenden, P. (1991) Physical and psychological maltreatment: Relations among types of maltreatment. *Child Abuse & Neglect,* 15 (1-2), 5-18.

Coid, J. (2003). Epidemiology, public health and the problem of personality disorder. *British Journal of Psychiatry*, 182 (44), s3-s10.

Coid, J., Hickey, N., Kahtan, N., Zhang, T., & Yang, M. (2007). Patients discharged from medium secure forensic psychiatry services: reconvictions and risk factors. *British Journal of Psychiatry*, 190, 223-229.

Cook, R. (1988). *The Client Assessment Form: A Screening Instrument for EAPs.* Paper presented at the Annual ALMACA Conference, Los Angeles, CA.

Costa, O. & McCrae, R. (1992). The five-factor model of personality and its relevance to personality disorders. *Journal of Personality Disorders,* 6, 343-359.

Craig, R. (1999). Overview and status of the MCMI. *Journal of Personality Assessment*, 77, 259-271.

Craissati, J., Webb, L. & Keen, S. (2008). The relationship between developmental variables, personality disorder, and risk in sex offenders. *Sexual Abuse: A Journal of Research and Treatment,* 20 (2), 119-138.

Cronbach, L. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16 (3)*, 297-334.

Cullen, E. (1992). The Grendon reconviction study – Part 1. *Prison Service Journal,* 99, 35-37.

Cullen, E. (1994). Grendon: the therapeutic prison that works. *Journal of Therapeutic Communities,* 15 (4), 301-310.

Davison, S., Leese, M., & Taylor, P. (2001). Examination of the screening properties of the Personality Diagnostic Questionnaire 4+ (PDQ-4+) in a prison population. *Journal of Personality Disorders*, 15(2), 180-194.

Deary, I., Peter, A., Austin, E., & Gibson, G. (1998). Personality traits and personality disorders. *British Journal of Psychology*, 89, 647–661.

Department of Health. (1983). *Mental Health Act 1983*. London: Author.

Department of Health. (2007). *Mental Health Act 2007*. London: Author.

Department of Health & National Offender Management Service. (2011). *Response to the Offender Personality Disorder Consultation*. Leeds: Author.

Dolan, B. & Coid, J. (1993). *Psychopathic and Antisocial Personality Disorders: Treatment and Research Issues.* London, England: Gaskell/Royal College of Psychiatrists.

Dolan. M., Millington. J., & Park. I. (2002). Personality and neuropsychological function in violent, sexual and arson offenders. *Medicine, Science and the Law*; 42, 34-43.

D'Silva, K., Duggan, C. & McCarthy, L. (2004). Does treatment really make psychopaths worse? A review of the evidence. J*ournal of Personality Disorder*, 18 (2), 163-177.

Duggan, C. (2004). Does personality change and, if so, what changes? *Criminal Behaviour and Mental Health*, 14 (1), 5-16.

Dunseith, N., Nelson, E., Brusman-Lovins, L., Holcomb, J., Beckman, D., Welge, J., et al. (2004). Psychiatric and legal features of 113 men convicted of sexual offences. *Journal of Clinical Psychiatry,* 65 (3), 293-300.

Egger, M., Schneider, M. & Smith, G. (1998). Meta-analysis Spurious precision? Meta-analysis of observational studies. *British Medical Journal,* 316, 140.

Elsayed, Y., Al-Zahrani, M. & Rashad, M. (2010) Characteristics of mentally ill offenders form 100 psychiatric court reports, *Annuals of General Psychiatry*, 9 (4).

Eysenck, H., & Eysenck, S. (1969). *Personality Structure and Measurement*. London: Routledge.

Eysenck, H., & Eysenck, S. (1975). *Eysenck Personality Questionnaire Manual*. London, Hodder & Stoughton.

Eysenck, S., Eysenck, H., & Barrett, P. (1985). A revised version of the psychoticism scale. *Personality and Individual Differences*, 6, 21–29.

Farrington, D. (2003). Key results from the first 40 years of the Cambridge study in delinquent development. In T. P. Thornberry and M. D. Krohn (eds.) *Taking Stock of Delinquency*. New York: Kluwer/Plenum.

Farrington, D., & Coid, J. (2003). *Early Prevention of Adult Antisocial Behaviour*. Cambridge University Press, UK.

Farrington, D., Coid, J. & Murray, J. (2009). Family factors in the intergenerational transmission of offending. *Criminal Behaviour and Mental Health*, 19, 109-124.

Fazel, S. & Danesh, J. (2002). Serious mental disorder in 23 000 prisoners: a systematic review of 62 surveys. *Lancet*, 359, 545-50.

Fazel, S., Hope, T., O'Donnell, I. & Jacoby, R. (2002). Psychiatric, demographic and personality characteristics of elderly sex offenders. *Psychological Medicine*, 32, 219-226.

Finkelhor, D. Ormrod, R. & Turner, H. (2007). Poly-victimization: A neglected component in child victimization. *Child Abuse & Neglect,* 31(1), 7-26.

Flynn, P., McCann, J., & Fairbank, J. (1995). Issues in the assessment of personality disorder and substance abuse using the MCMI-III. *Journal of Clinical Psychology*, 51, 415-421.

Fountoulakisa, K., Leuchtb, S. & Kaprinis, G. (2008). Personality disorders and violence. *Current Opinion in Psychiatry*, 21, 84–92

Fossati, A., Maffei, C., Bagnato, M., Donati, D., Donini, M., Fiorilli, M., et al. (1998). Brief communication: criterion validity of the Personality Diagnostic Qustionnaire-4+ (PDQ-4+) in a mixed psychiatric sample. *Journal of Personality Disorder,* 12 (2), 172-8.

Fridell M., Hesse, M., Jaeger, M., & Kuhlhorn, E. (2008). Antisocial personality disorder as a predictor of criminal behaviour in a longitudinal study of a cohort of abusers of several classes of drugs: Relation to type of substance and type of crime. *Addictive Behaviours*, 33 (6), 799-811.

Genders, E. & Player, E. (1995) Therapeutic Achievements. In J. Shine (Eds). *Grendon*: *A compilation of Grendon research* (pp.109-129). Oxford University Press, Leyhill.

Golier, J., Yehuda, R., Bierer, L., Mitropoulou, V., New, A., Schmeidler, J., et al. (2003). The relationship of borderline personality disorder to posttraumatic stress disorder and traumatic events. *American Journal of Psychiatry*, 160, 2018-2024.

Gray, W. (1973). The therapeutic community and evaluation of results. *International Journal of Criminology & Penology*, 1 (4), 327-334.

Groth-Marnat, G (2005). *Handbook of Psychological Assessment* (8th ed). Wiley, New Jersey.

Gunn, J. & Robertson, G.R. (1982). An evaluation of Grendon prison. In J. Gunn, & D.P. Farrington (Eds.), *Abnormal Offenders, Delinquency, and the Criminal Justice System* (pp.285- 305). New York: Wiley.

Gunn, J., Robertson, G., Dell, S. & Way, C. (1978). *Psychiatric Aspects of Imprisonment.* Academic Press Ltd, United Kingdom.

Guy, L., Poythress, N., Douglas, K., Skeem J. & Edens, J. (2008). Correspondence between self-report and interview-based assessments of antisocial personality disorder. *Psychological Assessment*, 20 (1), 47-54.

Hamilton, C., Falshaw, L. & Browne, K. (2002). The link between recurrent maltreatment and offending behaviour. *International Journal of Offender Therapy and Comparative Criminology*, 46 (1), 75-94.

Hare, R. D. (1996). Psychopathy. A clinical construct whose time has come. *Criminal Justice and Behavior*, 23 (1), 25−54.

Hare, R. D. (2003). *Manual for the Revised Psychopathy Checklist* (2nd ed.). Toronto, ON, Canada: Multi-Health Systems.

Harris, G., Rice, M. & Cormier, C. (1994). Psychopaths: Is a therapeutic community therapeutic? *Therapeutic Communities*, 15, 283-299.

Harsch, Bergk, Steinert, Keller. & Jockusch. (2006). Prevalence of mental disorders among sexual offenders in forensic psychiatry and prison. *International Journal of Law and Psychiatry*, 29, 443–449.

Hawkins, D., Herrenkohl, T., Farrington, D., Brewer, D., Catalano, T., Harachi, T., et al. (2000). Predictors of youth violence. *Juvenile Justice Bulletin*, U.D. Department of Justice, 1-11.

Heim, A. & Westen, D. PG 13 - 34. (2009) In J. Oldham, A. Skodol, & D. Bender. (2009). *Essentials of Personality Disorder.* American Psychiatric Publishing Inc, Washington, USA.

Hersen, M. (2004). *Comprehensive Handbook of Psychological Assessment, Volume 2*. Personality Assessment. New Jersey, Wiley.

Hobson, J. & Shine, J. (1998). Measurement of psychopathy in a UK prison population referred for long-term psychotherapy. *British Journal of Criminology*, 38 (3), 504-515.

Home Office & Department of Health (2000). *Reforming the Mental Health Act*. London: Stationary Office.

Home Office & Department of Health (2005). *Dangerous and Severe Personality Disorder (DSPD) high secure services for men: Planning and delivery guide*. London: Home Office.

Howells, K., Krishnan, G., & Daffern, M. (2007). Challenges in the treatment of dangerous and severe personality disorder. *Advances in Psychiatric Treatment*, 13, 325-332.

Hunt, C. & Andrews, G. (1992). Measuring personality disorder. The use of self-report questionnaires. *Journal of Personality Disorders,* 6 (2), 125-133.

Hurt, S., Hyler, S., Frances, A., Clarkin, J. & Brent, R. (1984). Assessing borderline personality disorder with self-report, clinical interview, or semi-structured interview. *The American Journal of Psychiatry*, 141, 1228-1231.

Hyler, S. E. (1994). *The Personality Diagnostic Questionnaire 4+*. New York, New York State Psychiatric Institute.

Hyler, S., Rieder, R. (1987) *Personality Diagnostic Questionnaire-Revised*. New York, New York State Psychiatric Institute.

Hyler, S., Reider, R., Williams, J., Spitzer, R., Hendler, J. & Lyons, M. (1988). The Personality Diagnostic Questionnaire: Development and preliminary results. *Journal of Personality Disorders, 2, 229-237.*

Hyler, S., Lyons, M., Reider, R., Young, L., Williams, J. & Spitzer, R. (1990). The factor structure of self-report DSM-III axis II symptoms and their relationship to clinician's ratings. *American Journal of Psychiatry,* 147, 751-757.

Hyler, S., Reider, R., Williams, J., Spitzer, R., Lyons, M. & Hendler, J. (1989). A comparison of clinical interview and self-report of DSM-III personality disorders in 552 patients. *Comprehensive Psychiatry,* 30 (2), 170-178.

Hyler, S., Skodol, A., Kellman, H., Oldham, J. & Rosnick, L. (1990). The validity of the Personality Disorder Questionnaire: A comparison with two structured interviews. *American Journal of Psychiatry,* 147, 1043-1048.

Hyler, S., Skodol, A., Oldham, J., Kellman, H., & Doidge, N. (1992). The validity of the PDQ-R: A replication in an outpatient sample. *Comprehensive Psychiatry,* 33, 73-77.

Johnson, J., Cohen, P., Brown, J., Smailes, E. & Bernstein, D. (1999). Childhood maltreatment increases risk for Personality Disorders during early adulthood. *Archives of General Psychiatry*, 56, 600-606.

Jones, M. (1952). *A Study of Therapeutic Communities*. London: Tavistock.

Kass, F., Skodol, A., Charles, E., Spitzer, R. & Williams, J. (1985). Scaled ratings of DSM-III personality disorders. *American Journal of Psychiatry,* 142, 627-630.

Kenny, D.A., Kashy, D.A., & Bolger, N. (1998). Data analysis in social psychology. In D. Gilbert, S. Fiske, & G. Lindzey (Eds*.), Handbook of Social Psychology* (4th ed), (pp. 233–265). New York.

Kernic, M., Wolf, M., Holt, V., McNight, B., Huebner, C. & Rivara, F. (2003). Behavioral problems among children whose mothers are abused by an intimate partner. *Child Abuse & Neglect,* 27 (11), 1231-1246.

Kitzmann, K., Gaylord, N., Holt, A. & Kenny, E. (2003). Child witnesses to domestic violence: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, 71 (2), 339-352.

Kline, P. (1986). *A Handbook of Test Construction.* London, Methuen.

Krueger, R., Skodol, A., Livesley, J., Shrout, P. & Huang, Y. (2007). Synthesising dimensional and categorical approaches to personality disorders: refining the research agenda for DSM-V Axis II. *International Journal of Methods in Psychiatric Research*, 16(SI), s65-s73.

Labree, W., Nijman, H., van Marle, H. & Rassin, E. (2010). Backgrounds and characteristics of arsonists. *International Journal of Law and Psychiatry*, 33, 149-153.

Langevin, R. (2003). A study of psychosexual characteristics of sex killers. Can we identify them before it is too late? *International Journal of Offender Therapy and Comparative Criminology*, 47, 366.

Lees, J. & Kennard, D. (1999). *Association of Therapeutic Communities' Response To: Managing dangerous people with severe Personality Disorder*. Proposals for policy development, Association of Therapeutic communities.

Lees, J., Manning, N. & Rawlings, B. (1999). *Therapeutic Effectiveness. A systematic international review of therapeutic community treatment for people with personality disorders and mentally disordered offenders (CRD report 17):* The University of York. NHS Centre for reviews and dissemination.

Leue, A., Borchard, B. & Hoyer, J. (2004). Mental disorders in a forensic sample of sexual offenders. *European Psychiatry,* 19, 123–130.

Lieb, K., Zanarini, M., Schmahl, C., Linehan, M. & Bohus, M. (2004). Borderline Personality Disorder. *Lancet*, 364: 453-61.

Liettu, A., Hakko, H., Ra¨sa¨nen, P. & Joukamaa, M. (2009). Mental disorders of male parricidal offenders. A study of offenders in forensic psychiatric examination in Finland during 1973–2004. *Social Psychiatry. Psychiatry Epidemiol.* 44, 96–103.

Lindberg, N., Holi, M., Tani, P. & Virkkunen, M. (2005). Looking for pyromania: Characteristics of consecutive sample of Finnish male criminals with histories of recidivists fire-setting between 1973 and 1993. *BMC Psychiatry*, 5 (47).

Lindsay, K. & Widiger, T. (1995). Sex and gender bias in self-report personality disorder inventories: I tem analysis of the MCMI-II, MMPI and PDQ-R. *Journal of Personality Assessment,* 65, 1-20.

Lipsey, M. & Derzon, J. (1998). Predictors of violent or serious delinquency in adolescence and early adulthood: A synthesis of longditudinal research. In R. Loeber and D, Farrington (Eds). *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions*. Thousand Oaks, CA: Sage Publications, pp. 86-105.

Listwan, S. (2001). *Personality and Criminal Behaviour: Reconsidering the Individual*. Division of Criminal Justice, University of Cincinnati.

Livesley, W. J. (2007). The relevance of an integrated approach to the treatment of personality disordered offenders. *Psychology, Crime and Law*, 13 (1), 27-46.

Loeber, R. (1990). Development and risk factors of juvenile antisocial behaviour and delinquency. *Clinical Psychology Review,* 10, 1-41.

Loranger, A., Susman, V., Oldham, J. & Russakoff, L. (1985). *Personality Disorder Examination (PDE): A Structured Interview for DSM-III-R Personality Disorders*. White Plains, New York Hospital-Cornell Medical Centre, Westchester Division.

Luntz, B, K. & Widom, C. S. (1994). Antisocial personality disorder in abused and neglected children grown up. *American Journal of Psychiatry*, 151: 670-674.

Maffei, C., Fossati, A., Agostoni, I., Barraco, A., Bagnato, M., Deborah, D., et al (1997). Interrater Reliability and Internal Consistency of the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II), Version 2.0. *Journal of Personality Disorder*, 11 (3), 279-284.

Maier, W., Lichtermann, D., Klinger, T. & Heun, R. (1992). Prevalence of personality disorders (DSMIII-R) in the community. *Journal of Personality Disorders, 6*, 187–196.

Maier, W., Lichtermann, D., Klinger, T. & Heun, R. (1992). Prevalence of personality disorders (DSM-III-R) in the community. *Journal of Personality Disorders*, 6, 187-196.

Marshall, P. (1997) *A reconviction study of HMP Grendon Therapeutic Community,* Home Office Research and Statistics Directorate (53): Home Office.

Marshall, W., & Marshall, L. (2007). The utility of the random controlled trial for evaluating sexual offender treatment: The gold standard or an inappropriate strategy? *Sexual Abuse: A Journal of Research and Treatment*, 19, 175-191-260.

Maschi, T. (2006). Unraveling the link between trauma and male delinquency: The cumulative versus differential risk perspectives. *Social Work*, 51 (1), 59-70.

Maxfield, M. & Widom, C. (1996). The cycle of violence. Revisited 6 years later. *Archives of Pediatrics and Adolescent Medicine, 150 (4), 390-395*.

McGuire, J. (ed.). (2002). *Offender Rehabilitation and Treatment: Effective Programmes and Policies to Reduce Re-offending*. John Wiley & Sons.

Miller, H., Steiner, D., & Parkinson, A. (1992). Maximum liklihood estimates of the ability of the MMPI and the MCMI personality disorder scales and the SIDP to identify personality disorder. *Journal of Personality Assessment*, 59, 1-13.

Millon, T. (1983). *Millon Clinical Multiaxial Inventory (3rd ed)*. Minneapolis, Interpretive Scoring Systems.

Millon, T. (1987). *Millon Clinical Multiaxial Inventory-II: Manual for the MCMI-II*. Minneapolis: National Computer Systems.

Millon, T. (1969). *Modern Psychopathology*. Philadelphia: Saunders.

Millon, T. (1990). *Towards a New Personology: An Evolutionary Model*. New York: Wiley-Interscience.

Millon, T. (2004). *Personality Disorders in Modern Life*. Wiley: UK.

Millon, T. (2006). *Millon Clinical Multiaxial Inventory-III: Manual* (3rd ed.). Minneapolis, National Computer Systems.

Morris, M. (2000). Grendon Underwood. A psychotherapeutic prison. In J. Shine (Eds). *A Compilation of Grendon Research* (pp.9-19). PES: HMP Leyhill.

Myers, I. (1987). *Introduction to Type: A Description of the Theroy and Applications of the Myers-Briggs Type Indicator*. Consulting Psychologist Press, California.

National Institute for Mental Health for England (NIMH(E). (2003). *Personality Disorder: No Longer a Diagnosis of Exclusion*. NIMH(E).

Newton, M. (1998) Changes in measures of personality, hostility and locus of control during residence in a prison therapeutic community. *Legal and Criminological Psychology*, 3, 209-223.

Newton, M. (2000a) Age and reconviction after residence in a prison therapeutic community. *Forensic Update*, 61.

Newton, M. (2000b) Ethnic Minorities at Grendon: Trends in admission and length of stay. *In A Compilation of Grendon Research* (ed J. Shine). Aylesbury: HMP Grendon.

Newton, M. (2000c) *Psychological variable as dynamic risk factors for reconviction among residents in a prison therapeutic community*: Research and development unit, HMP Grendon.

Niveau, G. (2010) Psychosocial profile of Swiss sexual offenders. *Journal of Forensic Sciences*, 43(4), 755-759.

Nunnally, J. (1978). *Psychometric Theory* (2nd ed.). New York, McGraw-Hill.

O'Connell-Higgins, G. (1994). *Resilient Adults: Overcoming A Cruel Past*. Jossey-Bass, San Francisco.

Oliver, C., Beech, A., Fisher, D. & Beckett, R. (2007). A comparison of rapists and sexual murders in demographic and selected psychometric measures. *International Journmal of Offender Therapy and Comparitive Criminology*, 51(3), 298-312

Paris, J. (1996). *Social factors in personality disorder: A biopsychosocial approach to etiology and treatmen*t. Cambridge: Cambridge University Press.

Perry, C., Banon, E. & Ianni, F. (1999). Effectiveness of psychotherapy for personality disorders. *American Journal Psychiatry*, 156: 1312-1321.

Perry, J. (1992). Problems and considerations of the valid assessment of personality disorder. *American Journal of Psychiatry*, 149, 1645-1653.

Pfohl, B., Blum, N. & Zimmerman, M. (1997). Structured Interview for DSM-IV Personality (SIDP-IV). American Psychiatric Press, Washington, DC.

Powis, B. (2002). Offender's risk of serious harm: A literatiure review. *Occasional Paper* (81). Home Office: London.

Prochaska, J. DiClemete, C. Norcross, J. (1992). *In Search of How People Change*. Pro-Ed.

Rawlings, B. (1998). *Research on Therapeutic Communities in Prisons: A Review of the Literature* Report produced for HM Prison Service.

Rawlings, B. (1999). The therapeutic community in the prison. Problems in maintaining therapeutic integrity. *Therapeutic Communities,* 19 (4), 281-294.

Rigonatti, S., Serafim, A., Caires, M., Filho, A. & Arboleda-Florez, J. (2006). Personality disorders in rapists and murderers from a maximum security prison in Brazil. *International Journal of Law and Psychiatry*, 29, 361–369.

Samuel, D. & Widiger, T. (2011). Conscientiousness and obsessive-compulsive personality disorder. *Personaltiy Disorders: Theory, Research and Treatment*, 2(3), 161-174.

Schimmel, P. (1997). Swimming Against the Tide? A Review of the Therapeutic Community, *Australian and New Zealand Journal of Psychiatry*, 31 (1), 120-127.

Shine, J. (2000). *A Compilation of Grendon Research*. PES: HMP Leyhill.

Shine, J. & Newton, M. (2000). Damaged, disturbed and dangerous: a profile of receptions to Grendon therapeutic prison 1995-2000. In J. Shine (Ed.) *A compilation of Grendon research* (pp.23-25). PES: HMP Leyhill.

Shuker, R. & Newton, M. (2008). Treatment outcome following intervention in a prison-based therapeutic community: a study of the relationship between reduction in criminogenic risk and improved psychological well-being. *The British Journal of Forensic Practice*, 10, 3.

Simons, R., Goddard, R., & Patton, W. (2002). Hand-scoring error rates in Psychological testing. *Assessment*, 9, 292.

Singleton, N., Meltzer, H., Gatward, R., Coid, J. & Deasy, D. (1998). *Psychiatric morbidity among prisoners in England and Wales*, London: HMSO. Office for National Statistics, London, UK.

Sizmur, S. & Noutch, T. (2005). Dangerous and severe personality disorder services. *The British Journal of Forensic Practice*, 7(4). 33-38.

Skodol, A., Rosnick, L., Kellman, H., Oldham, J., & Hyler, S. (1998). Validating structured DSM-III-R personality disorder assessments with longitudinal data. *American Journal of Psychiatry*, 145, 1297-1299.

Snowden, P. & Kane, E. (2003). Personality disorder: no longer a diagnosis of exclusion. *The Psychiatrist*, 27, 401-403.

Soloff, P., Lynch, K., Kelly, T., Malone, K. & Mann, J. (2000). Characteristics of Suicide Attempts of Patients With Major Depressive Episode and Borderline Personality Disorder: A Comparative Study. *American Journal of Psychiatry*, 157: 601-608.

Stalenheim, E. &Von Knorring, L. (1998). Personality traits and psychopathy in a forensic psychiatric population. *The European Journal of Psychiatry*, 12 (2), 83-94.

Stein, D., Hollander, E., & Skodol, A. (1993). Anxiety disorders and personality disorders: A review. *Journal of Personality Disorders*, 7(2), 87-104.

Stouthamer-Loeber, M., Loeber, R., Farrington, D., Zhang, Q., Van Kammen, W. & Maguin, E. (1993). The double edge of protective and risk factors for delinquency: Interrelations and developmental patterns. *Development and Psychopathology,* 5, 683-701.

Taylor, R. (2000) A seven year reconviction study of HMP Grendon Therapeutic Community. *Home Office Research, Development and Statistics directorate*: Home Office.

Thornton, D., Mann, R., Bowers, L., et al (1996) Sex Offenders in a Therapeutic Community. In J. Shine (Eds). *Grendon*: *a compilation of Grendon research.* PES, Leyhill.

Tiihonen, J., & Hakola, P. (1994). Psychiatric disorders and homicide recidivism. *American Journal of Psychiatry*, 151: 436-438.

Trull, T. (1993). Temporal stability and validity of two personality disorder inventories. *Psychological Assessment*, 5(1), 11-18.

Turner, H. Finkelhor, D. Ormrod, R. Hamby, S. (2010). Trends in Childhood Violence and Abuse Exposure Evidence From Two National Surveys. *Archives of Pediatrics & Adolescent Medicine,* 164(3): 238-242.

Ullrich, S., Yang, M. & Coid, J. (2010). Dangerous and severe personality disorder: An investigation of eth construct. *International Journal of Law and Psychiatry*, 33, 84-88.

Van der Vijer, F. & Poortinga, Y. (1997). Towards an integrated analysis of bias in cross-cultural assessment. *European Journal of Psychological Assessment*, 13 (1), 29-37.

Van Wijk, Anton; Vermeiren, Robert; Loeber, Rolf; 't Hart-Kerkhoffs, Lisette; Doreleijers, Bullens, T. (2006) Juvenile Sex Offenders Compared to Non-Sex Offenders: A Review of the Literature 1995-2005. *Trauma, Violence, & Abuse*, 7(4), 227-243.

Wallace, C., Mullen, P., Burgess, P., Palmer, S., Ruschena, D. & Browne, C. (1998). Serious criminal offending and mental disorder. A case linkage. *The British Journal of Psychiatry*, 172(6), 477-484.

Walters, G. (2000). Disposed to aggress? In search of the violence prone personality. *Aggression and Violent Behavior*, 5, (2), 177–190.

Warren, F., McGauley, G., Norton, K., Dolan, B., Preedy-Fayers, K., Pickering. M., et al., (2003). *Review of Treatments for Severe Personality Disorder*. London: Home Office.

Warren, J., Burnette, M., South, S., Chauhan, P., Bale, R. & Friend, R. (2002). Personality disorders and violence among female prison inmates. *Journal of American Academic Psychiatry Law*, 30, 502-509.

Wexler, H. (1997) Therapeutic communities in American prisons. In: Cullen, E., Jones, L., Woodward, R. (Editors). *Therapeutic Communities for Offenders*. Chicester: John Wiley and Sons; p. 161-79.

World Health Organisation. (2007). *International Statistical Classification of Diseases and Related Health Problems 10th Revision*. Author, London.

Widiger, T., & Simonsen, E. (2005) Alternative dimensional models of personality disorder: Finding a common ground. *Journal of Personality Disorder*, 192, 110-130.

Widiger, T., Frances, A., Spitzer, R. & Williams, J. (1988). The DSM-III-R personality disorders: An overview. *American Journal of Psychiatry,* 145**,** 786–795.

Widom, C, S. (1999). Posttraumatic stress disorder in abused and neglected children grown up. *American Journal of Psychiatry*. 156: 1223-1229

Widom, C. (1991). Childhood victimization: Risk factor for delinquency. In: M.E. Colten and S. Gore. (Eds). *Adolescent stress: Causes and consequences*, Aldine de Gruyter, New York, pp. 201–221.

Widom, C. & White, H. (1997). Problem behaviours in abused and neglected children grown up: prevalence and co-occurrence of substance abuse, crime and violence. *Criminal Behaviour and Mental Health,* **7**, 287–310

Wierzbicki, M., & Gorman, J. (1995). Correspondence between students scores on the Millon Clinical Multiaxial Inventory-II and Personality Diagnostic Questionnaire-Revised. *Psychological Reports,* 77(3,2), 1079-82.

Willberg, T., Dammen, T., & Friis, S. (2000). Comparino Personalità Siagnostic Questionnaire-4+ with Longitudinal, Export, All Data (LEAD) standard diagnoses in a sample with a high prevalence of axis I and axis II disorders. *Comprehensive Psychiatry,* 41(4), 295-302.

Williams, J., Gibbon, M., First, M., Spitzer, R., Davies, M., Borus, J., et al. (1992). The Structured Clinical Interview for DSM-III-R (SCID) II. Multisite Test-Retest Reliability. *Archives General Psychiatry*; 49 (8), 630-636.

Zanarini, M., Williams, A., Lewis, R., Reich, R., Vera, S., Marino, M., Levin, L., Yong, L and Frankenburg, F. (1997). Reported pathological childhood experiences associated with the development of borderline personality disorder. *American Journal of Psychiatry*; 154, 1101-1106.

Zanarini, M., Yong, L., Frankenburg, F., Hennen, J., Reich, D., Marino, M., et al. (2002). Severity of reported childhood sexual abuse and its relationship to severity of borderline psychopathology and psychosocial impairment among borderline inpatients, *Journal of Nervous and Mental Disease*, 190 (6), 381-387

Zimmerman. M., & Coryell, W. (1990). Diagnosing personality disorders in the community: A comparison of self report and interviewer measures. *Archives of General Psychiatry*, 47, 527-531.

Zuckerman, K. (2010). Editorial: Reports from the DSM-V work group on sexual and gender identity disorders. *Archives of Sexual Behaviour*. 39, 217-20.

APPENDICES

Appendix 1

1.1 Quality assessment criteria for **Cross-sectional study:** Examination of the relationship between variables of interest as they exist in a defined population at one particular time.

Question	Y	N	U	Comments
Selection bias				
Is the definition of cases (offending) explicit?				
Is the definition of personality disorder explicit?				
Is the classification system for personality disorder clear?				
Has the classification of personality disorder been reliably assessed and validated?				
Is the classification system for personality disorder comparable to other studies?				
Was the selection of participants at random?				
Are they representative?				
Were the participants of the cases and controls recruited from the same population?				
Is the description of the groups (offence type) and distribution of demographic/background factors sufficient (age, gender, SES, ethnicity)?				
Were the groups comparable in all important confounding variables?				
Was there any control/adjustment for the effects of these confounding variables?				
Were the staff, places, and facilities where the patients were treated , representative of the treatment the majority of offenders receive?				
Performance and detection bias				
Was the outcome (personality disorder) assessed in the same way for cases and controls?				
Were exposures to factors (other than personality disorder) which may affect participant's response? (Reverse score)				
Was the outcome assessment blind to all participants?				
Were the assessment instrument(s) (psychometrics/questionnaire) standardised				
Were the assessment instrument(s) comparable to instruments used in other studies?				
If any of the results of the study were based on "data dredging", was this made clear?				
Attrition bias				
Were dropout rates and reasons for drop-out similar across groups?				
Was an appropriate statistical analysis used (matched or unmatched?)				

Reporting (not covered in sections above)				
Is the hypothesis/aim/objectives of the study clearly labelled?				
Are the main findings of the study clearly described?				
Have actual probably values been reported (e.g., 0.035 rather than <0.05) for the main outcomes except where the probability value s less than 0.001?				

Power		
Did the study have sufficient power to detect a clinically important effect where the probability value for a difference being due to chance is less than 5%? *Sample sizes have been calculated to detect a difference of x% and y%.*	Size of the smallest intervention group	
	$<n_1$	0
	$n_1 - n_2$	1
	$n_3 - n_4$	2
	$n_5 - n_6$	3
	$n_7 - n_8$	4
	$n_8 +$	5

TOTAL: /56 **TOTAL NO. OF U'S =**

PERCENTAGE: %

Appendix 1

1.2 Quality assessment criteria for **Case control studies:** Comparison of exposure to interventions between participants with the outcome (cases) and those without the outcome (controls).

Question	Y	N	U	Comments
Selection bias				
Is the definition of cases (offending) explicit?				
Is the definition of personality disorder explicit?				
Is the classification system for personality disorder clear?				
Has the classification of personality disorder been reliably assessed and validated?				
Is the classification system for personality disorder comparable to other studies?				
Was the selection of participants at random?				
Are they representative?				
Were the participants of the cases and controls recruited from the same population?				
Is the description of the groups (offence type) and distribution of demographic/background factors sufficient (age, gender, SES, ethnicity)?				
Were the groups comparable in all important confounding variables?				
Was there any control/adjustment for the effects of these confounding variables?				
Were the staff, places, and facilities where the patients were treated , representative of the treatment the majority of offenders receive?				
Performance and detection bias				
Was the outcome (personality disorder) assessed in the same way for cases and controls?				
Were exposures to factors (other than personality disorder) which may affect participant's response? (Reverse score)				
Was the outcome assessment blind to all participants?				
Were the assessment instrument(s) (psychometrics/questionnaire) standardised				
Were the assessment instrument(s) comparable to instruments used in other studies?				
If any of the results of the study were based on "data dredging", was this made clear?				
Attrition bias				
Were dropout rates and reasons for drop-out similar across groups?				
Was an appropriate statistical analysis used (matched or unmatched?)				

Reporting (not covered in sections above)				
Is the hypothesis/aim/objectives of the study clearly labelled?				
Are the main findings of the study clearly described?				
Have actual probably values been reported (e.g., 0.035 rather than <0.05) for the main outcomes except where the probability value s less than 0.001?				

Power		
Did the study have sufficient power to detect a clinically important effect where the probability value for a difference being due to chance is less than 5%? *Sample sizes have been calculated to detect a difference of x% and y%.*	Size of the smallest intervention group	
	$<n_1$	0
	$n_1 - n_2$	1
	$n_3 - n_4$	2
	$n_5 - n_6$	3
	$n_7 - n_8$	4
	$n_8 +$	5

TOTAL: /56   **TOTAL NO. OF U'S =**

PERCENTAGE: %

Appendix 2.
Data Extraction Sheets

General information

Researcher performing data extraction

Date of data extraction

Identification features of the study:
    Record number (to uniquely identify study)
    Author
    Article title
    Citation
    Type of publication (e.g., journal article, conference abstract)
    Country of origin
    Source of funding

Study characteristics

Re-verification of study eligibility
- Correct population
- Correct intervention
- Correct outcome

Aim/objectives of the study
Study design
Study inclusion and exclusion criteria
Recruitment procedures used (e.g., details of randomisation, blinding)

Participant characteristics

Characteristics of participants at the beginning of the study e.g.,
    Age
    Gender
    Ethnicity
    Socio-economic status

Number of participants in each characteristic category for intervention and control group(s) or mean/median characteristic values (record whether it is the number eligible, enrolled, or randomised that is reported in the study)

Intervention and setting

Setting in which the intervention is delivered

Description of the assessment procedure

Outcome data/results

Unit of assessment/analysis

Statistical techniques used

Were the stats adjusted for confounding variables

For each pre-specified outcome:
    Definition used in study
    Measurement tool or method used
    Who carried out the measurement?
    Were the tools validated?
    How was the validity of self-reported behaviour maximized?

For all intervention group(s) and control group(s):
    Number of participants enrolled
    Number of participants included in analysis
    Number of withdrawals, exclusions, lost to follow-up
    Summary outcome data e.g.,

Results of study analysis e.g.,

Missing data
Effect measures
Quality assessment score
Additional outcomes
Adverse events

Appendix 3.

Consent to Participate in Assessment for Grendon Therapeutic Community

As part of the assessment process you are asked to provide information about yourself and to complete a number of psychological tests, interviews, and questionnaires. These are used to help with assessments and in identifying areas that you will need to work on in therapy.

I understand that in order to improve the regime and the treatment provided, information from assessments will also be collated and used in confidence by the research and development unit. I acknowledge that if information from assessments is used for research I will not be identified.

I give consent to take part in the assessment.

Name

Signed

Date