# Psychosocial factors implicated in the development of antisocial personality disorder

**Eliza-Jane Corson, BSc., MSc.**

**Student ID: 4234947**

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## ABSTRACT

Evidence suggests that Antisocial Personality Disorder (ASPD) is highly prevalent amongst young males involved in the criminal justice system (Lader, Singleton, & Meltzer, 2003); however effective psychological treatment options for people with the disorder is limited (Gibbon et al., 2010). This thesis therefore explores psychosocial factors implicated in the development of the disorder, with the view to identify specific treatment targets for psychotherapeutic interventions. In the first instance, a systematic review and meta-analysis was conducted to examine the efficacy of Mentalization Based Therapy (MBT), a psycho-dynamically informed intervention. MBT was originally developed to treat people with Borderline Personality Disorder (BPD), yet to date no meta-analysis has evaluated the efficacy of MBT alone. Furthermore, emerging evidence suggests that MBT can be effective for people with ASPD, however at present, there are insufficient studies to examine the effectiveness of the approach with this population. Therefore, MBT was examined with the view to assess treatment outcomes for adolescents with emerging BPD and adults diagnosed with BPD. In accordance with the specific inclusion criteria, five primary articles were retained and analysed. In relation to the MBT group, there was a significant improvement in symptoms. Furthermore, effect sizes for other problems (anxiety, depression, suicidal attempts/self-harm) were found to be large to very large. When considering interpersonal functioning, interestingly, analysis revealed no effect favouring either the treatment or control group. Regarding impairment, a large and significant effect size was found in favour of the control group. Overall, adolescents derived greater benefit

from the treatment when compared to adults. Limitations relate to the number of available studies in this review. In order to identify treatment targets for psychotherapeutic interventions, an empirical study explored the relationship between mentalizing capability, attachment style and schema as predictors of ASPD in 79 men recruited from a Young Offenders Institution (YOI). The results confirmed that anxious attachment style and specific Early Maladaptive Schema (EMS) domains relating to Disconnection & Rejection (mistrust-abuse); Impaired Autonomy & Performance (dependence), and Impaired Limits (entitlement) are associated with ASPD in young male offenders. Inferential analyses confirmed that intellectual functioning did not influence performance on any measures. Main limitations relate to the cross-sectional nature of the study and sample size. Following this theme, a single case study relating to the assessment and treatment of a young male with ASPD and comorbid diagnoses was undertaken using a firesetting offence focused treatment programme. Formulation, treatment progress and outcomes are discussed; and recommendations for further work are provided. Thereafter, a critical appraisal of the Revised Adult Attachment Scale (RAAS; Collins, 1996), a measure utilised in the empirical study was conducted. Consideration is given to the utility of the RAAS, particularly within forensic populations. The RAAS was found to be a reliable and valid measure for use with undergraduate, general, and clinical populations. Further research relating to the application within forensic populations is needed to test the reliability and validity of the tool with offenders. Finally, the thesis discusses limitations of the methodologies used and highlights how the overall aim of this thesis was achieved.

## OVERVIEW

In order to achieve the overall aim of this thesis, a range of methodologies are used which include a systematic review and meta-analysis, an empirical study, a single case study, and a critique of a psychometric measure.

Chapter one highlights the identified issues associated with young offenders with ASPD.

Chapter two, a systematic review and meta-analysis, aimed to quantitatively examine the efficacy of MBT for BPD when compared to all forms of minimal treatment, clinical management, community, active treatment or waiting list such as treatment as usual (TAU). Furthermore, it aimed to examine whether adolescents with emerging BPD or adults with BPD experienced greater treatment gains.

Chapter three, an empirical study, aimed to explore whether deficits in mentalizing capability are associated with ASPD; adverse attachment styles are associated with greater severity in ASPD symptomatology; and whether greater severity in ASPD symptomatology is associated with higher scores on EMS domains of *Disconnection and Rejection*, *Impaired Autonomy,* and *Impaired Limits.* These specific constructs were selected on the basis of empirical findings, for example, poor mentalizing capability and EMS are attributed to poor attachment experiences during early childhood (Fonagy, Gergely, Jurist, & Target, 2002; Simard, Moss, & Pascuzzo, 2011); and evidence suggests that people with ASPD are likely to present with adverse attachment styles

(e.g., Bateman & Fonagy, 2008) and specific EMS (e.g. Özdel et al., 2015).

Chapter four presents a single case study relating to the assessment and treatment of a young male with diagnoses of ASPD, ID, ADHD and Pyromania. The main aim was to reduce the risk of reoffending through delivering a 1:1 adapted Firesetting Intervention for People with Developmental and Intellectual Disabilities (FIP-DID; Inett, Sheeran, Gannon, & Lockerbie, 2013). This case study also highlights some of the complexities in relation to working with a young offender with ASPD and comorbid diagnoses, particularly in relation to treatment engagement.

Chapter five critically appraises the Revised Adult Attachment Scale (RAAS; Collins, 1996), a psychometric measure used in the empirical study; with the aim to assess reliability and validity of the tool. Thereafter, implications for forensic practice are discussed.

Chapter six concludes this thesis by providing the link between the aforementioned chapters, discussing the specific aims of the thesis including limitations of the methodologies used, and implications for future research and practice.

## STATEMENT OF AUTHORSHIP

Findings from Chapter three were presented at the following professional conference (see Appendix O):

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The author confirms sole ownership of this submission. Where ideas/work are not her own; relevant sources have been appropriately referenced. This submission does not include any work previously completed at another university.

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# Chapter One

## Introduction to Thesis

## 1.1. Background

The terms antisocial personality disorder (ASPD), dissocial, psychopathy and sociopathy have been used to describe a subset of individuals who engage in dysfunctional behaviour that is self-serving, enduring, problematic, violates the rights of others and is intrinsically linked to personality traits. The Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5, American Psychiatric Association [APA], 2013), provides an overview of the diagnostic criteria related to ASPD (Appendix F).

ASPD can only be diagnosed in individuals who also meet criteria for Conduct Disorder (CD), however not all individuals with CD develop ASPD. Much like ASPD, the DSM-5 (APA, 2013) diagnostic criteria for CD refers to a persistent and repetitive pattern of abnormal behaviour, which consists of rule breaking prior to the age of 18 years. A further distinction is made between childhood-onset CD, which presents prior to the age of 10 years and adolescent-onset CD, which presents thereafter.

In relation to the developmental trajectory of antisocial behaviour Moffitt (1993), proposes a ‘dual taxonomy’ theory highlighting two typologies referred to as Life-Course Persistent (LCP) and adolescent limited (AL) sub-groups; each characterised by a unique etiology. This influential theory contributed to the distinction made between the two forms of CD highlighted in the DSM (APA, 1994; 2013).

LCP individuals with childhood-onset CD are likely to persist offending in adulthood, behaviour which also increases in severity. They are mostly male and make up a smaller percentage of the offending

population (5-10%), however are considered persistent offenders (Moffatt, 1993; 2006). Findings from a longitudinal study (Farrington and West, 1993) also indicated that this group has a higher number of overall recorded offences. According to Moffitt's theory, this group are different in kind from AL offenders since they present with causal factors also present in early childhood, stemming from neuropsychological and biological risk factors (i.e. behavioural and temperament problems, poor parenting and neurocognitive problems), which in combination with criminogenic environments make them more susceptible to developing pathological personality problems (Moffitt, 1993; Moffitt & Caspi, 2001).

In comparison, the AL subgroup with adolescent-onset CD is more prevalent, relatively normative and engage in comparatively non-violent antisocial behaviour later. They are also are more likely to desist in young adulthood due to normative and healthy predelinquent development. Moffitt (1993) asserts that causes of temporary antisociality in this group, which occur alongside puberty, may be attributable to proximal factors, relevant to developmental stage (i.e. association with antisocial peers and 'maturity gap' such as a desire for autonomy). Moffitt asserts however, that recovery could be delayed by 'snares' (i.e. criminal records, incarceration, early parenting); which can have a negative impact on successful transition into adulthood. Raine, et al., (2005) also reported that the LCP group also had poorer verbal IQs, greater experience of abuse and neglect, and higher rates of ADHD compared to the AL group.

There is robust support for Moffatt's taxonomy (Jennings, & Reingle, 2012; Piquero, Farrington, Nagin, & Moffitt, 2010), however,

follow-up studies using the Dunedin Cohort found that whilst the outcomes at 26 years for the AL group were comparably better than the LCP group, this group did not necessary desist from offending as previously suggested. Instead they continued to engage in lower level crime such as property offences. They also reported mental health problems, substance dependence financial problems and had elevated impulsivity traits (Moffitt, Caspi, Harrington, & Milne, 2002).

Since Moffatt's typology was developed, researchers have identified two further subgroups of 'childhood-limited' and 'adult onset' antisocial behaviour. Childhood-limited group are reported to display severe conduct problems in childhood but desist from antisociality in adolescence (Chen, & Jaffee, 2015). Marmorstein (2006) found 2.3% of participants exhibiting adult onset antisocial behaviour without CD reported similar profile of comorbid psychiatric disorders found in people with full ASPD, whilst other studies (Black, & Braun, 1998; Perdikouri, Rathbone, Huband, & Duggan, 2007) reported no clinically distinct differences between antisocial individuals with and without conduct disorder, albeit highlighting that the adult onset group may represent a less severe degree of ASPD. These studies highlight the heterogeneity among antisocial offenders both in terms of etiology and development of antisocial behaviour.

In accordance with Moffatt's theory, age has consistently correlated with offending behaviour (Hirschi & Gottfredson, 1983). The 'age-crime-curve' has shown that antisociality and criminal behaviour increases in adolescence and peaks around the age of 20, then begins to decline. Longitudinal studies have consistently reflected this pattern using a wide range of participants varying in socio-economic and demographic

characteristics (Farrington, 1986; Sampson & Laub, 2003; Farrington et al., 2013; Loeber, & Farrington, 2014).

Much research has considered whether Moffitt's theory is applicable to females with studies concluding that whilst the trajectory is relevant, the prevalence is rare in females (Lahey, et al., 2000; Moffitt, 2001; Odgers, et al., 2008). Other studies reported that the taxonomy is more applicable to male as opposed to female offenders (Kratzer, & Hodgins, 1999); and whilst antisocial females appear to display similar patterns than those of males, there are some distinctions. As such, a third developmental pathway referred to the 'delayed-onset' pathway has been proposed (Silverthorn & Frick, 1999). This 'delayed-onset' is similar to childhood-onset in males when considering impulse control and callous and unemotional traits (Silverthorn, Frick, & Reynolds, 2001).

There is a plethora of studies linking callous and unemotional (CU) traits to the development of ASPD. CU traits are characterised by a behavioural pattern that reflect lack of guilt and empathy and callous use of others. Studies have highlighted that this particular subgroup of delinquents are comparably more aggressive and stable in antisociality (Kruh, Frick, & Clements, 2005). Furthermore, they also show a number of distinct emotional, cognitive, and personality characteristics compared to other antisocial youth (Frick, & White, 2008). CU traits are also relevant for psychopathy conceptualisations in adults (Cleckley, 1976; Hare, 1998).

ASPD is associated with psychopathy given that there is an overlap in their diagnostic features (Ogloff, 2006) and the disorders are highly comorbid (Werner, Few, & Bucholz, 2015). This is despite the fact that the

underlying psychobiological constructs are distinct (Ogloff, Campbell, & Shepherd, 2016; Venables, Hall & Patrick, 2014; Rogstad & Rogers, 2008). However, Coid and Ullrich (2010) argue that the disorders are not distinct diagnostic entities, though psychopathy in combination with ASPD results in a more severe form of ASPD and is associated with greater violence risk. Psychopathy however, can be conceptualised as a disorder of interpersonal and affective deficits while ASPD is primarily behaviorally based (Werner, Few, & Bucholz, 2015). Although most psychopaths meet the criteria for ASPD, many individuals with ASPD do not meet criteria for psychopathy (Hare, 1991). Research has shown that individuals with ASPD, particularly those with comorbid psychopathic traits, show impairments in empathy (Blair, 1995). Empathy is positively associated with prosocial behaviour (Lockwood, Seara-Cardoso, & Viding, 2014). As such, individuals with lower levels of empathy are more likely to offend (Jolliffe, 2014).

ASPD is also highly comorbid with Borderline Personality Disorder (BPD) with rates of up to 77% (Torgersen et al., 2008; Coid, Hickey, Kahtan, Zhang, & Yang, 2007; Black, Gunter, Loveless, Allen, & Sieleni, 2010; Howard, Khalifa, Duggan, 2014). In forensic samples, this co-occurrence is common and has also shown to result in higher levels of violence (Freestone et al., 2012; Howard, Huband, Duggan, & Mannion, 2008) and psychopathic features (Mullen, 1992). ASPD and BPD are both categorised as Cluster B disorders which also include histrionic and narcissistic PD's (APA, 2014). Cluster B disorders which are characterised by dramatic, overly emotional or unpredictable patterns of thinking or

behaviour have also been associated have been associated criminality (Coid et al., 2006).

ASPD is three times more common in men and contributes strongly to the burden of violence in the British population, with prevalence rates up to 5% in community samples (Coid et al., 2016). In comparison, the disorder is highly prevalent amongst remand and sentenced young male offenders with rates between 76 to 81% (Lader, et al., 2003); and indeed is over-represented in prisoner populations (Fazel & Danesh, 2002). This is unsurprising, given that the disorder is associated with problematic and procriminal behaviours. Despite this, it is acknowledged that there is a lack of effective psychological interventions available to treat this population (Gibbon et al., 2010). Furthermore, ASPD has historically been stigmatised as an untreatable disorder, which may have contributed to the lack of interest from professionals working with this population (Duggan & Kane, 2010; Yakeley & Williams, 2014) and poor follow-up rates for those who do attempt to engage with services (Crawford, Sahib, Bratton, Tyrer, & Davidson, 2009).

Treating individuals with ASPD presents challenges associated with high rates of pre-treatment hostility and impulsivity (Huband, McMurran, Evans, & Duggan, 2007), engagement difficulties (Kendall et al., 2009; MoJ, 2017) and they are also described as treatment rejecting (Tyrer, Mitchard, Methuen, & Ranger, 2003). Research into treatment efficacy is limited, and attributed to the reasons above. As such, there are few good quality randomised controlled trials examining treatment outcomes for this population. In a meta-analysis, Gibbon et al. (2010) examined

available psychological interventions for people with ASPD with the view to assess both benefits and adverse effects. Of the 11 studies included, only two specifically focused on an ASPD sample. It was concluded that there was insufficient evidence to justify the use of psychological interventions for adults with ASPD. Furthermore, few studies targeted specific outcomes relevant to ASPD such as aggression, reconviction, global functioning and adverse effects from treatment. However, treatments designed to address substance misuse problems were found to be helpful. None of the included studies reported antisocial behavioural change. Since violence and offending behaviour are central to ASPD, the view that people with ASPD should be treated for their offending behaviour through the legal and criminal justice system comes as no surprise (Duggan & Kane, 2010).

Meta-analyses have provided evidence to suggest that ASPD heritable and that between 41-56% of antisocial behaviour variance can be explained by genetic factors (Ferguson, 2010; Mason and Frick 1994; Miles and Carey, 1997; Rhee and Waldman, 2002). However, research into the development of the disorder has also implicated the role of adverse attachment experiences and thus, suggests that ASPD can be considered a disorder of attachment (Levinson & Fonagy, 2004; Frodi, Dernevik, Sepa, Philipson, & Bragesjo, 2001; van IJzendoorn et al., 1997). The recommended treatment approach for young offenders with ASPD is cognitive behavioural therapy (CBT), aimed at reducing reoffending and antisocial behaviours (NICE, 2009). However, emerging evidence suggests that Mentalization Based Therapy (MBT) is a promising

treatment approach for this population (McGauley, Yakeley, Williams, & Bateman, 2011; Bateman, O'Connell, Lorenzini, Gardner & Fonagy, 2016). Moreover, MBT supports the development of secure attachment (Allen, Fonagy, & Bateman, 2008), which is also thought to contribute to reducing violence in people with ASPD (McGauley, et al., 2011; Kendall et al., 2009).

Similar to John Bowlby's concept of internal working models, schemas are enduring inner representations of attachment figures relating to beliefs about self and others (Bach, Lee, Mortensen, & Simonsen, 2016). ASPD is also associated with the presence of early maladaptive schemas (EMS) (e.g. Özdel et al., 2015) and adverse attachment experiences (Simard et al., 2011). As with MBT, Schema Therapy (ST) which combines Cognitive Behavioural Therapy (CBT) and psychotherapeutic techniques, was primarily developed for individuals with Borderline Personality Disorder (BPD), however a growing evidence base supports its efficacy for treating ASPD (Bernstein, Arntz, & Vos, 2007; Bernstein, et al., 2012).

Whilst there are many risk factors relevant to the development of ASPD, it is beyond the scope of this thesis to examine such a wide range of considerations; therefore this study aims to explore specific psychological factors relevant to the development of ASPD. Offending behaviour and violence are key factors in ASPD recognised to be perpetuated by certain psychosocial factors. These include difficulties in the individual's attachment experience during infancy and early childhood, an inability to mentalize another's mental state, and the formation of maladaptive schemas which make them prone to over-perceive threat. By

understanding the mechanisms underlying these deficits, services may be in a position to identify the most suitable psychological interventions for young offenders. Potentially, early intervention for these young offenders will greatly improve future rehabilitative outcomes, thus reducing future cost on society. The current thesis explores within the subsequent chapters, the issues highlighted above.

# Chapter Two

## Mentalization Based Therapy (MBT) as a treatment for people with Borderline Personality Disorder: A Systematic Review and Meta-Analysis

**ABSTRACT**

**Background.** Mentalization Based Therapy (MBT) is a psycho-dynamically informed psychotherapy, which is used to treat individuals with Borderline Personality Disorder (BPD). To date, no meta-analysis has focused specifically on examining the efficacy of MBT alone. This treatment approach warrants further exploration, given that studies have shown promising results and long lasting post-treatment gains.

**Aims and objectives.** The aim was firstly to evaluate the effectiveness of MBT treatment when used as a treatment for BPD. The primary outcome was symptoms. Secondary outcomes included anxiety, depression, impairment, suicidal attempts/self-harm and interpersonal functioning. The second aim was to examine the effectiveness of MBT for adolescents with emerging BPD (12-17 years) when compared to adults (18+ years) with BPD.

**Method.** Included studies were either randomised controlled trials (RCTs) or controlled trials. A systematic search was employed across five online databases (EMBASE, PsycINFO, Medline, Cochrane (Trials Register) and Campbell Collaboration including (up to 10 June 2016)). Search terms included (mentali?*) OR (mentali?* based treatment) OR (mentali?* based therap*) OR (MBT) AND (Borderline Personality Disorder) OR (BPD) OR (Borderline) AND (Randomi?* Control Trial) OR (RCT) OR (Control Trial) OR (Control) OR (Trial) OR (Match*). Two reviewers assessed studies for risk of bias using Review Manager ('RevMan') software, across five methodological domains: sequence generation, allocation concealment, blinding, incomplete outcome data and selective reporting.

**Results.** Calculations of effect sizes were based on five studies measured

at baseline and after 12 months of MBT treatment. Of these, four were randomised controlled trials (RCTs), and one was a controlled trial. MBT yielded significant and large to very large treatment effect sizes for target problems. Overall, there were significant improvements in symptoms (SMD -1.18) favouring the treatment group. Effect sizes for other problems (anxiety, depression, suicidal attempts/self-harm) were found to be large to very large, however, when considering interpersonal functioning, interestingly analysis revealed no effect favouring either the treatment or control group. Regarding impairment, a large and significant effect size was found in favour of the control group (SMD 1.11). Overall, adolescents derived greater benefit from the treatment when compared to adults.

**Conclusions.** This meta-analysis has provided useful information in relation to evidencing the efficacy of MBT. Adolescents with emerging PD in particular derived greater benefit; therefore these findings justify the benefits of early intervention for this group of people. Because of the limited availability of studies included in this review, future RCTs using larger groups are needed, particularly studies that are independent of the original programme developers. Recent evidence has shown that MBT can successfully be used to treat ASPD, however further RCTs are needed to support this claim.

KEYWORDS: Mentalization/Mentalisation Based Therapy, MBT, borderline personality disorder, BPD, adolescents.

## 2.1. INTRODUCTION

Borderline Personality Disorder (BPD) is a pervasive condition that can be described as an impairment of interpersonal functioning, which can include affective instability, repeated self-harm and suicidal tendencies (Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004). It is suggested that around 70-75% of people with BPD engage in deliberate self-harm (Gunderson & Ridolfi, 2001; Linehan, Heard, & Armstrong, 1993), and the lifetime suicide risk for this population is around 10% (Paris & Zweig-Frank, 2001).

Prevalence of BPD ranges between 1 to 2% within the general population, up to 10% in psychiatric outpatients, and 20% in inpatients (Coid et al., 2006; Laurenssen et al., 2014; Lieb et al., 2004; Samuels et al., 2002; Torgersen, Kringlen, & Cramer, 2001). There is evidence to suggest that neurobiological, genetic factors and childhood adversity may play a role in relation to the development of the disorder (Lieb et al., 2004), however, BPD is not formally diagnosed before the age of 18 years yet despite this, emergent features and traits can be identified much earlier (NICE, 2009).

Given the nature of the condition, individuals with BPD are characteristically treatment-seeking and frequent users of mental health services, resulting in significant demands on health professionals (Coid, 2003), particularly since in addition to high rates of self-harm and suicidal attempts, it is often comorbid with psychiatric disorders (Gross et al., 2002). As such, sufferers often present in crisis, requiring treatment in emergency care settings (NICE, 2009), and are high users of inpatient psychiatric care facilities (Ansell, Sanislow, McGlashan, & Grilo, 2007).

Therefore, as such a costly condition, both on an individual and societal level, effective psychotherapeutic treatments designed to reduce the need for medical attention and improve the quality of life for those affected is required.

Over the past 15 years a growing evidence base has emerged, where RCTs have demonstrated the effectiveness of a range of specialist psychotherapeutic models designed to treat BPD. For example, Dialectical Behavior Therapy (DBT; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991; Linehan et al., 2006), Transference Focused Psychotherapy (TFT; Doering et al., 2010; Giesen-Bloo., 2006; Levy et al., 2006), Schema Focused Therapy (SFT; Farrell, Shaw, & Webber, 2009; Giesen-Bloo., 2006; Nadort et al., 2009), Systems Training for Emotional Predictability and Problem Solving (STEPPS; Blum et al., 2008; Bos, van Wel, Appelo, & Verbraak, 2010) and Mentalization Based Therapy (MBT; Bateman & Fonagy, 1999; Bateman & Fonagy, 2009). In a meta-analysis, Stoffers et al., (2012) concluded that DBT provided the most robust evidence in relation to efficacy, showing moderate to very large effect sizes, followed by MBT. DBT has been extensively studied (Kliem, Kroger, & Kosfelder, 2010) and has proven useful in reducing self-harm and suicidal attempts (Linehan et al., 1991; Linehan et al., 2006), however, whilst post treatment gains have been found to remain consistent at one year follow-up (van den Bosch, Koeter, Stijnen, Verheul, & van den Brink, 2005; Linehan et al., 1993), it has been suggested that in order to sustain longer term treatment effects, standard DBT should be followed by booster sessions due to the possibility of extinction in the long term (van den Bosch et al., 2005). MBT in comparison, which has a smaller, yet

significant evidence base warrants further exploration given the positive long term post treatment outcomes shown in a group of partially hospitalised MBT patients who continued to improve five years after treatment had ended, evidencing both incremental and longer post treatment gains (Bateman & Fonagy, 2008).

MBT is an integrative psycho-dynamically oriented treatment approach rooted in attachment and cognitive theory, involving systemic and ecological approaches; developed and manualised for people with Borderline Personality Disorder (BPD) by Peter Fonagy and Anthony Bateman. According to Bateman and Fonagy (2004), individuals with BPD tend to have a decreased capacity to mentalize, often resulting in self-defeating behaviours. The main goals of MBT are to 1) establish a safe attachment environment and, 2) stimulate the mentalizing process (Anna Freud Centre, 2014, p6). As a result, this will enable the individual to better learn to manage emotional states in the context of interpersonal relationships. Furthermore, by applying mentalizing to relationships and problems, this will promote a sense of curiosity about one's own mental state and those of others thus curtailing rigidity which prevents optimal personality functioning. Mentalizing therefore promotes flexible thinking in order to appropriately adjust responses and behaviour.

Mentalizing is crucial for the formation of secure attachment, allowing patients to better understand their own mental states and those of others, which according to Bales et al. (2014) helps to address their difficulties in relation to affective instability, impulse control and interpersonal functioning; issues which are related to incidences of self-harm and suicide.

The treatment involves individual and group psychotherapy sessions, lasts up to 18 months and includes a follow-up. Using RCTs, MBT has been found effective for adults with BPD in a partial hospitalised context (MBT-PH; Bateman & Fonagy, 1999) and an outpatient setting (MBT-OUT; Bateman & Fonagy, 2009), whilst another study has shown effectiveness of MBT in relation to reducing incidents of self-harm when adapted for adolescents with emerging BPD (MBT-A; Rossouw & Fonagy, 2012).

To date, no meta-analysis to the researcher's knowledge has focused specifically on examining the effectiveness of MBT alone. This treatment approach warrants further exploration, given that it has shown promising results, therefore professionals would benefit from understanding the efficacy of the intervention with the view to inform future practice. Furthermore, MBT has been adapted for adolescents with emerging BPD (MBT-A; Rossouw & Fonagy, 2012), therefore by evidencing the effectiveness of early intervention, services may be in a position to justify prioritising treatment for adolescents, thus potentially improving future outcomes for those affected by this condition. If proven effective as a tool for early intervention, MBT may also reduce societal costs in the long term. The current meta-analysis therefore aimed to quantitatively examine the effectiveness MBT for people with BPD, with the following objectives:

1. To evaluate whether MBT results in an improvement of BPD (i.e. symptoms, anxiety, depression, impairment, suicidal attempts/self-harm and interpersonal functioning) when compared to all forms of

minimal treatment or waiting list such as treatment as usual (TAU), clinical management, community or active treatment.

2. To examine the efficacy of MBT for adolescents with emerging BPD when compared to adults in relation to improvement of symptoms, anxiety, depression, impairment, suicidal attempts/self-harm and interpersonal functioning when compared to all forms of a minimal treatment or waiting list such as treatment as usual (TAU), clinical management and community or active treatment.

## 2.2. METHODOLOGY

### 2.2.1. Study eligibility

Study eligibility criteria are reported in accordance with the PICO (Population, Intervention, Comparison, Outcome) principles, relating to systematic reviews and meta-analyses (Petticrew & Roberts, 2008).

*Population.* Studies were included if participants fell into one of two groups (i) adolescents ages 12-17 years with symptoms of emerging personality disorder who had presented to mental health services with a confirmed episode of self-harm within the month prior to recruitment (ii) adults ages 18 and over with a formal diagnosis of BPD based on the criteria of diagnostic systems such as the DSM or ICD. In relation to the exclusion criteria for both groups, participants with comorbid psychosis or severe psychiatric disorders were excluded, including those with learning disability (IQ <65), a pervasive developmental disorder or primary diagnosis of an eating disorder.

*Intervention.* The intervention had to include a 12-18 month MBT treatment programme delivered by MBT trained professionals.

*Comparison group.* Included studies had to involve a comparator group, which involved all forms of minimal treatment, clinical management, community, active treatment or waiting list such as TAU.

*Outcome.* Outcome behaviours were specific to those considered relevant to BPD. The primary outcome was symptoms. Secondary outcomes included anxiety, depression, impairment, suicidal attempts/self-harm and interpersonal functioning. Self-report using structured questionnaires were accepted.

*Study designs.* Only controlled trials were included. Controlled studies were accepted if they were randomised or non-randomised and included measures at baseline and after 12 months of MBT treatment.

### 2.2.2. Search Strategy

Initial scoping search was undertaken in June 2016, which identified over 6,810 articles on Google scholar search engine. Preliminary searches of both the Campbell and Cochrane (Trials Register) libraries did not produce existing reviews examining the effectiveness of MBT alone, instead the reviews focused on other psychological and crisis interventions for personality disorders, as well as pharmacological interventions. Following scoping searches, it became clear that whilst there was a plethora of research on the topic (i.e. MBT for BPD), there was a paucity

of RCTs examining the effectiveness of the intervention. Therefore, the inclusion of controlled trials did not preclude any suitable studies from the current meta-analysis. Furthermore, no specific time period was employed on the search strategy.

Following the scoping searches, five bibliographic electronic databases (EMBASE, PsycINFO, Medline, Cochrane and Campbell Collaboration) were searched initially on 3 June 2016 and again on 10 June 2016. Grey literature sources i.e. electronic theses repository websites were searched as follows: University of Nottingham, University of Birmingham, Proquest, University College London (UCL) and DART. Reference lists of studies were hand searched on 11 June 2016 and 12 June 2016 as appropriate. Furthermore, experts (Professors Anthony Bateman, UCL and Peter Fonagy, UCL & Dr Trudie Rossouw, Priory Hospital) were also contacted.

The following search terms were applied to EMBASE, PsycINFO, Medline, Cochrane and Campbell Collaboration is presented below. Search syntax details are shown in Appendix A.

(mentali?*) OR (mentali?* based treatment) OR (mentali?* based therap*) OR (MBT) AND (Borderline Personality Disorder) OR (BPD) OR (Borderline) AND (Randomi?* Control Trial) OR (RCT) OR (Control Trial) OR (Control) OR (Trial) OR (Match*)

### 2.2.3. Study Selection and Data Extraction

The current review considered all articles on RCTs or controlled

trials examining effectiveness of MBT published before 17 June 2016. The title of articles and abstracts were screened. Following this, final inclusion was based on review of full articles after the researcher and supervisor assessed selected studies using a specific inclusion/exclusion form before a decision was made (Appendix B). Disagreements were resolved through discussion without the need to refer to a third party. Data extraction took place on 17 June 2016 and was completed by the researcher and supervisor. In order to conduct the analyses, control means and standard deviation (SD) data from specific reported outcome measures were extracted from each of the selected studies at baseline and after 12 months of MBT treatment (Appendix C).

The researcher and supervisor assessed studies for risk of bias in accordance with the Cochrane Collaboration criteria for RCTs (Higgins et al., 2011). Using Review Manager ('RevMan') software, risk of bias was assessed across five methodological domains: sequence generation, allocation concealment, blinding, incomplete outcome data and selective reporting. Risk of bias was categorised according to three level (i.e. low, high and unclear) (Higgins et al., 2011) (Appendix D).

### 2.2.4. Process for Meta-Analysis

Meta-analyses were planned to examine the effectiveness of MBT upon symptoms, anxiety, depression, impairment, suicidal attempts/self-harm and interpersonal functioning. Outcomes were analysed according to three subgroups (i) all included studies; (ii) RCT studies only, and (iii) adult studies only. In order to assess the effectiveness of MBT treatment for adults using RCTs only, further sensitivity analyses was conducted

which removed the adolescent study and controlled study. This allowed the researcher to assess the impact of randomisation on the efficacy of MBT treatment on a population of adults alone using only RCTs. Analyses were conducted for an outcome that had been measured and reported at baseline and after 12 months of treatment in at least three studies.

In order to calculate effect sizes, the standardized mean difference (SMD), (i.e. change in the treatment group minus change in the control group) outcomes were divided by the pooled pretest standard deviation (SD) (Hedges & Vevea, 1996). In cases where there were a number of measurements for the same outcome across studies, the most frequently reported one across the five trials was used. In studies where outcome measures yielded more than one score for related concepts (i.e. a score for each sub-scale), the average score for all the sub-scales of a measure for that particular study was calculated. Key characteristics relating to included studies are presented in Table 1. Meta-analyses were employed using information derived from each of the studies, which was then entered into RevMan 5.1 (http://ims.cochrane.org/revman).

The Standardised Mean Difference (SMD) was reported as Hedges' *g* and SMDs were calculated with an adjustment for sample size differences (Hedges & Vevea, 1996). Hedges' *g* inferences can be made using Cohen's d conventions relating to the following effect sizes: small ($d = 0.2$), medium ($d = 0.5$), large ($d = 0.8$), and very large ($d \geq 1.3$) (Cohen, 1988). Heterogeneity was anticipated due possible clinical differences given the population under study and interventions employed (i.e. MBT and MBT-A), and therefore to account for this, Random Effects Models (RAM) with 95% confidence intervals (CI), as recommended by

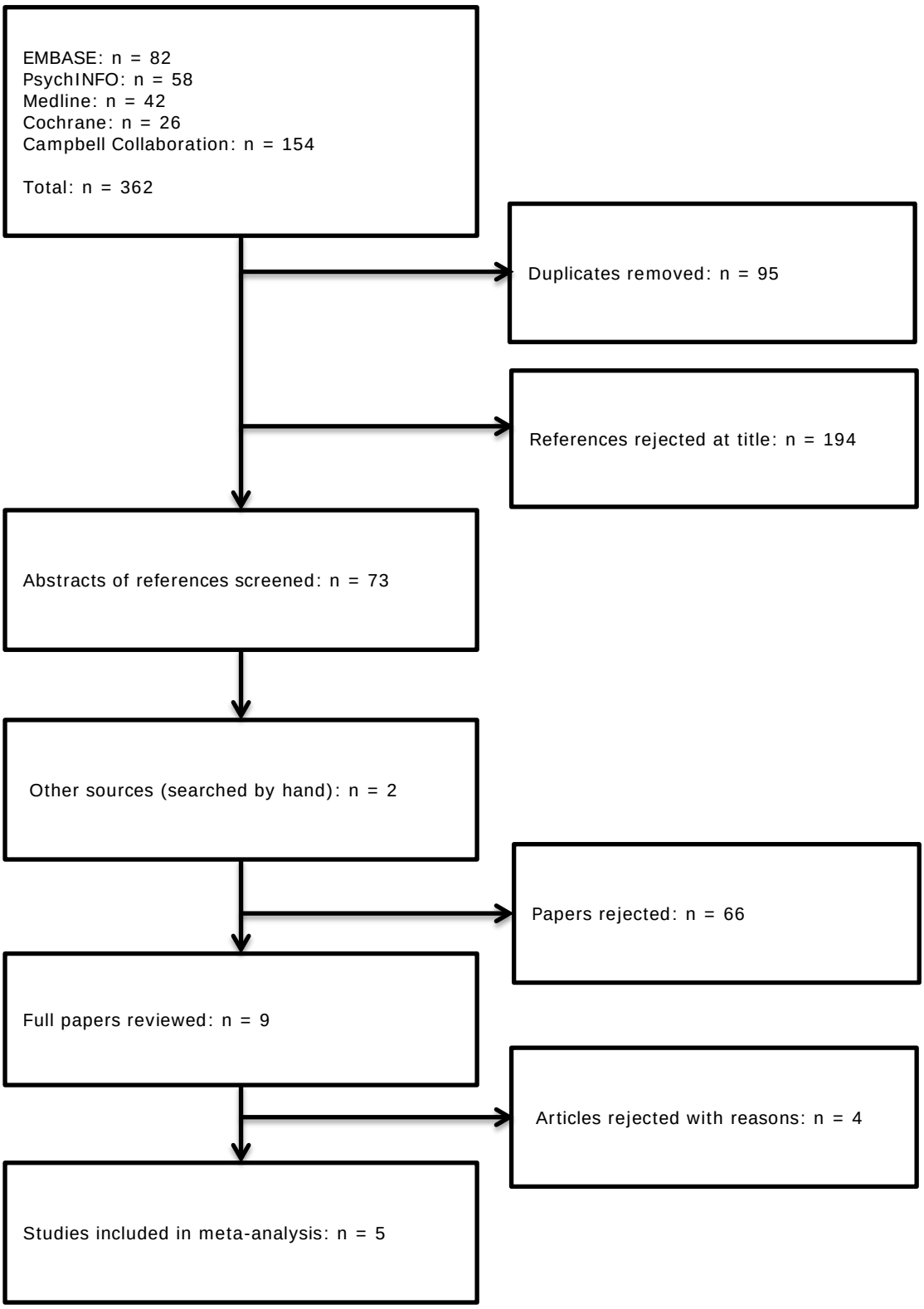
Field and Gillett (2010), were employed throughout analysis. To explore heterogeneity, the $I^2$ statistic was computed and is expressed as a percentage indicating its degree; for example, 25% is indicative of low heterogeneity, 50% implies moderate and 75% is a threshold indicator for high heterogeneity (Higgins, Thompson, Deeks, & Altman, 2003). Calculating the Q statistic provided the statistical significance of heterogeneity.

Due to only five studies being included in this meta-analyses, the effects of publication bias using funnel plots could not be investigated as it is recommended that substantially more than 10 studies are required to interpret publication bias (Ioannidis, 2008; Sterne, Higgins, & Reeves, 2011).

## 2.3. RESULTS OF SEARCH

The full search yielded 362 studies 95 duplicates were removed and 194 references were rejected at title (Figure 1 overleaf). Thereafter, the remaining 73 abstracts were screened. Following the hand-search two additional papers were included. 66 papers were rejected resulting in nine full papers being screened. Four papers were subsequently rejected with reasons (Appendix E) and five studies, which met the entry criteria in accordance with PRISMA guidelines and had data suitable for analysis, were retained. These included four RCTs i.e. Bateman and Fonagy (1999); Jorgensen et al. (2013); Bateman and Fonagy (2009); Rossouw and Fonagy (2012) and one controlled trial, Bales et al. (2015).

**Figure 1.** Adapted PRISMA Diagram (Moher, 2010) reporting flow of articles through the meta-analysis process.



### 2.3.1. Included Studies

The main objective of all included studies was to examine the efficacy of MBT using either RCTs or controlled trials. Bateman and Fonagy (1999) examined the effectiveness of psychoanalytically oriented partial hospitalisation (later manualised as MBT) with standard psychiatric support for patients with BPD. Treatment for the experimental group involved the following 1) individual psychoanalytic sessions once a week, 2) three times/week group analytic psychotherapy for one hour per session, 3) weekly expressive therapy focused towards psychodrama techniques for an hour, 4) one community meeting a week for an hour, all carried out over five days. In addition, on a monthly basis participants had 5) a case administrator meeting which lasted an hour. Patients length of stay was on average, 1.45 years.

In another study by Bateman and Fonagy (2009) evaluated the effectiveness of an outpatient MBT programme against an outpatient structured clinical management (SCM) for patients with BPD over an 18-month period. The intervention for the experimental group involved weekly combined individual and group psychotherapy sessions. Participants were offered appointments every three months for psychiatric review.

Jorgensen et al. (2013) combined MBT/Psychotherapy, which they compared to supportive psychotherapy for patients with BPD. The treatment for the experimental group involved two years of intensive (twice weekly) combined (individual and group) MBT sessions. Bales et al. (2015) examined the effectiveness of MBT day hospital outcomes involving patients with severe BPD, who were compared to a matched

control group receiving other specialised psychotherapeutic treatments (OPT) over a period of 18 months. The MBT group involved group and individual psychotherapy sessions held both daily and weekly, patient specific crisis planning, twice-weekly art therapy, mentalizing cognitive group therapy and writing therapy. The weekly programme was concluded with a social hour and community meeting.

The only study on adolescents by Rossouw and Fonagy (2012) examined whether mentalization-based treatment for adolescents (MBT-A) was superior to treatment as usual (TAU) for adolescents who self-harm, over a period of 12 months. Treatment for the experimental group involved individual MBT-A sessions held weekly and monthly mentalization-based family therapy (MBT-F), each lasting 50 minutes.

All included studies indicated that MBT treatment was delivered by MBT trained professionals. Key characteristics relating to included studies are summarised in Table 1 overleaf:

Table 1. Key characteristics of studies included in analyses

| | | | | | Outcome measures | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Primary | Secondary | | | | |
| **Trial, Study Inclusion Criteria, Country,** | **Age Mean/ Standard Deviation** | **Sample Size MBT/ Control** | **Setting/ Duration** | **Control Condition** | **Symptoms** | **Anxiety** | **Depression** | **Impairment** | **Suicidal attempts/Self-Harm** | **Interpersonal Functioning** |
| Bateman & Fonagy (2009)<br><br>Randomised Controlled Trial<br><br>UK | MBT<br>31.3 (7.6)<br><br>Control<br>30.9 (7.9) | 71/63 | Community Out-Patient/ 18 months | Structured clinical management outpatient approach | Patients self-reported experience of symptoms was measured using the SCL-90-R. | None | Beck Depression Inventory (BDI-II) | Treatment outcome was assessed using a therapist-rated global assessment of functioning (GAF). | Occurrence of suicidal and severe self-injurious behaviors including episodes of hospitalisation, assessed in 6-month periods both in terms of counts and as dichotomous data (present or absent in each period) was used to establish the severity of life-threatening parasuicidal behavior. | Social adjustment and interpersonal functioning was evaluated using the modified self-report Social Adjustment Scale. |
| Jorgensen et al., (2013)<br><br>Randomised Controlled Trial<br><br>Denmark | MBT<br>29.2 (6.1)<br><br>Control<br>29.0 (6.4) | 39/19 | Community Out-Patient/ 24 months of intensive (bi-weekly) combined with individual or group | Support Group Therapy | Patients self-reported experience of symptoms was measured using the Revised Symptom Check List 90 (SLC-90-R). | Beck Anxiety Inventory (BAI) | Beck Depression Inventory (BDI-II) | Treatment outcome was assessed using a therapist-rated global assessment of functioning (GAF). | None | None |
| Bateman & Fonagy (1999)<br><br>Randomised Controlled Trial<br><br>UK | MBT<br>30.3 (5.68)<br><br>Control<br>33.3 (6.60) | 19/19 | Partial hospitalisation /18 months | General psychiatric services | Global Severity Index Score | Spielberger Inventory - State Anxiety Score | Beck Depression Inventory (BDI-II) | None | None | None |
| Bales at al. (2015)<br><br>Controlled Trial<br><br>Netherlands | MBT<br>30.0 (6.17)<br><br>Control<br>30.4 (7.93) | 29/29 | Day hospitalisation /18 months | Other specialised psycho-therapeutic treatments | Global Severity Index Score | None | None | None | None | Severity Indices of Personality Problems (SIPP-118) SIPP - average means for 5 scales |
| Rossouw & Fonagy (2012)<br><br>Randomised Controlled Trial<br><br>UK | MBT<br>15.4 (1.3)<br><br>Control<br>14.8 (1.2) | 40/40 | Community Out-Patient/12 months (Including family therapy) | Treatment as usual | Childhood Interview for DSM-IV Borderline Personality Disorder (CI-BPD) | Experiences of Close Relationships (ECR) – Mean Anxiety | None | None | Risk Taking and Self Harm Inventory (RTSHI) | None |

### 2.3.2. Design

Four studies (Bateman & Fonagy, 1999; Bateman & Fonagy, 2009; Jorgensen et al., 2013; Rossouw & Fonagy, 2012) were randomised, parallel-arm trials except for one (Bales et al., 2015) which was a matched-control study. All trials were conducted within a single site.

### 2.3.3. Sample Sizes

The sample sizes ranged from n=19 to n=71. Across the five studies N=368 participants were included in the analysis (mean = 36.8, SD = 18.11); with n=198 (mean = 39.6, SD = 19.51) allocated to treatment and n=170 (mean = 34, SD = 18.38) to the control groups.

### 2.3.4. Participants

Overall in relation to gender, the majority of trials were mixed but predominantly female. Across treatment and control groups, the mean percentage of female participants was as follows: in Bateman and Fonagy (1999) (n=13; 68%) vs. (n=9, 47%), Bateman and Fonagy (2009) (n=57; 80.3%) vs. (n=50, 79.4%), Jorgensen et al. (2013) (n=56; 97%) vs. (n=25, 93%), Rossouw & Fonagy (2012) (n=35; 87.5%) vs. (n=33, 82.5%), Bales et al., (2015) (n=20; 69%) vs. (n=25, 86%).

### 2.3.5. Settings

Three trials were conducted in an outpatient setting (Bateman & Fonagy, 2009; Jorgensen et al., 2013; Rossouw & Fonagy, 2012), one within a day-hospitalised setting (Bales et al., 2015) and one (Bateman & Fonagy, 1999) with partially hospitalised participants within the

experiment group, whilst the control group participants remained as outpatients.

### 2.3.6. Diagnostic Criteria and Means of Assessment

The presence of BPD for all four adult studies (Bales et al., 2015; Bateman & Fonagy, 1999; Bateman & Fonagy, 2009; Jorgensen et al., 2013) was confirmed through the Structured Clinical Interview for DSM-IV (SCID) (First, Gibbon, Spitzer, Benjamin, & Williams, 1997). For the adolescent study (Rossouw & Fonagy, 2012), eligibility involved participants' ages 12-17 years who had presented to mental health services with at least one incident of self-harm within the month prior.

This meta-analysis examined the effectiveness of MBT across six different measurable outcomes, which included symptoms, anxiety, depression, impairment, suicidal attempts/self-harm and interpersonal functioning. Reviewed trials had measurable data at baseline and after 12 months of MBT treatment. In order to measure participant symptoms, the following instruments were used, SCL-90-R (Derogatis, 1983), which was employed in two studies (Bateman & Fonagy, 2009; Jorgensen et al., 2013), and the Global Severity Index Score (Derogatis, 1983) in a further two studies (Bales et al., 2015; Bateman & Fonagy, 1999). The adolescent study (Rossouw & Fonagy, 2012) utilised the Childhood Interview for DSM-IV Borderline Personality Disorder (CI-BPD) (Zanarini, 2003). Three studies included measurable data for anxiety. Measures utilised for adult studies were as follows; Beck Anxiety Inventory (Beck & Steer, 1991), which was employed in one study (Jorgensen et al., 2013), whilst the Spielberger Inventory -State Anxiety Score (Spielberger,

Gorsuch, & Lushene, 1970) was employed in another study (Bateman & Fonagy, 1999). The adolescent study (Rossouw & Fonagy, 2012) utilised the Experiences of Close Relationships (ECR) measure (Brennan, Clark, & Shaver, 1998). Three adult studies included measurable data for depression and all utilised the Beck Depression Inventory (BDI-II) (Beck, Erbaugh, Ward, Mock, & Mendelsohn, 1961), these were Bateman and Fonagy (2009), Jorgensen et al. (2013) and Bateman and Fonagy (1999). Two adult studies included measurable data for impairment. Both utilised a therapist rated Global Assessment of Functioning (GAF) (Spitzer, Gibbon, Williams, & Endicott, 1996). These were Bateman and Fonagy (2009) and Jorgensen et al. (2013). Two studies (one adult and one adolescent) included measurable data for suicidal attempts/self-harm. The adult study, (Bateman & Fonagy, 2009) measured incidence of suicidal and severe self-injurious behaviors and episodes of hospitalisation, assessed in 6-month periods both in terms of counts and as dichotomous data (present or absent), whilst the adolescent study (Rossouw & Fonagy, 2012) utilised the Risk Taking and Self Harm Inventory (RTSHI-A; Vrouva, Fonagy, Fearon, & Roussow, 2010), which is a self-report measure. Finally, two adult studies included measurable data for interpersonal functioning; Bateman & Fonagy (2009) utilised the Social Adjustment Scale–self-report and Bales et al. (2015) utilised the Severity Indices of Personality Problems (SIPP-118) (Verheul et al., 2008) where the average mean score for five scales were included in analyses.

### 2.3.7. Exclusion Criteria

Potential participants were excluded on the following basis:

undergoing long-term psychotherapeutic intervention, met DSM-IV criteria for psychotic disorder, bipolar I disorder or were receiving specialist treatment for opiate dependence, or had an organic brain disorder to mental impairment (Bateman & Fonagy, 1999; Bateman & Fonagy, 2009). Participants were also excluded if they had a comorbid diagnosis of antisocial or paranoid personality disorder at the time of randomisation, or had severe substance abuse issues, which required specialist treatment (Jorgensen et al., 2013). Another study excluded participants on the basis of comorbid diagnosis of psychosis, learning disability (<IQ 65), an eating disorder in the absence of self-harm; chemical dependence or a pervasive developmental disorder (Rossouw & Fonagy, 2012).

## 2.4. FINDINGS

Five studies met the entry criteria and had data amenable to meta-analysis. It was possible to explore six different outcomes at meta-analytic level and each outcome will be considered in turn. Intervention effects will be presented in accordance with each of the six outcomes below.

**Symptoms.** Five studies contributed a BPD symptom outcome representing n=368 participants (MBT n=198/control n=170). The analysis revealed a large and significant effect size in favour of MBT treatment (SMD = -1.18, CI=-2.29, -0.07). Heterogeneity was significant $X^2$ 83.89, $I^2=95\%$, p<0.01. Effect sizes were enhanced but non-significant when limited to randomised controlled designs (SMD = -1.32, CI=-2.79, 0.14). Heterogeneity was also significant in this sensitivity analysis, $X^2$

83.63, $I^2=96\%$, p<0.01. When restricted to studies involving adults only, effect sizes were then considerably reduced (small/medium) but still significant when limited to studies involving adults only (SMD = -0.46, CI=-0.84, -0.08). Heterogeneity was not significant in this sensitivity analysis, $X^2$ 6.74, $I^2=56\%$, p=0.08.

Figure 2: Forest plot showing estimate of the size of controlled intervention change in symptoms for both adult and adolescent studies.

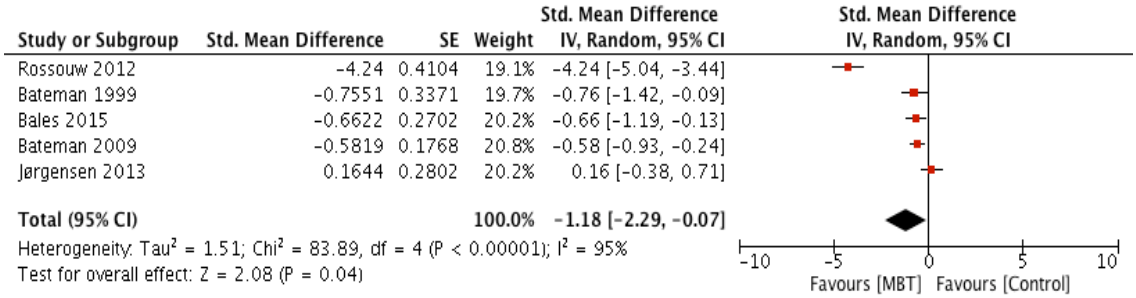
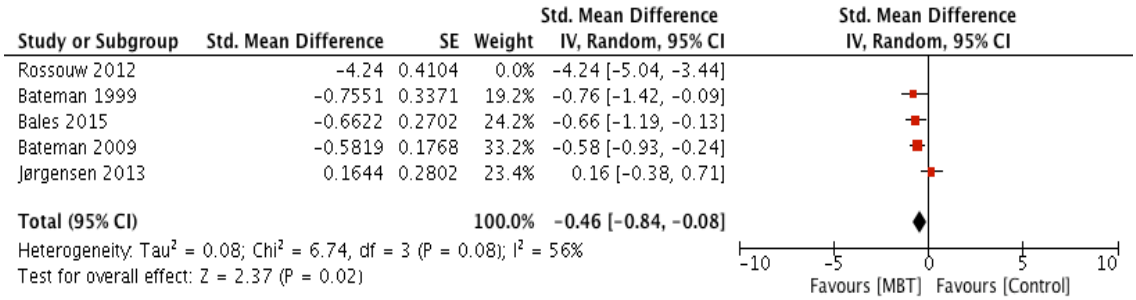



Figure 3: Forest plot showing estimate of the size of controlled intervention change in symptoms with adolescents removed.




**Anxiety.** Three studies contributed to the anxiety symptom outcome representing n=176 participants (MBT n=98/control n=78). The analysis revealed a large but non-significant effect size in favour of MBT treatment (SMD = -0.84, CI=-2.16, 0.49). Heterogeneity was significant $X^2$ 29.62, $I^2=93\%$, p<0.01. Effect sizes were enhanced but remained non-significant

when limited to treatment studies involving adults only (SMD = -1.12, CI=-3.95, 1.71). Heterogeneity was significant in this sensitivity analysis, $X^2$ 29.49, $I^2=97\%$, p<0.01.

Figure 4: Forest plot showing estimate of the size of controlled intervention change in anxiety for both adult and adolescent studies.

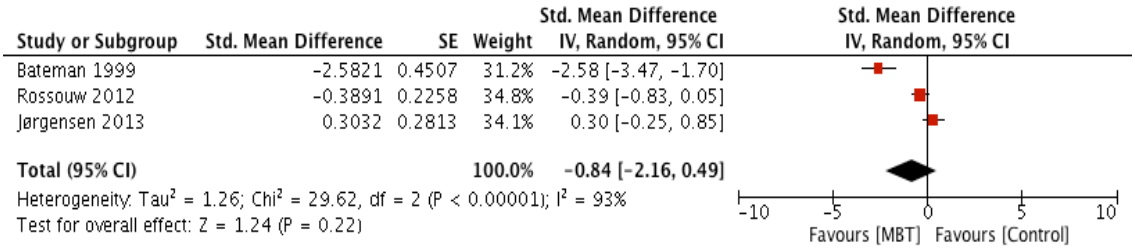
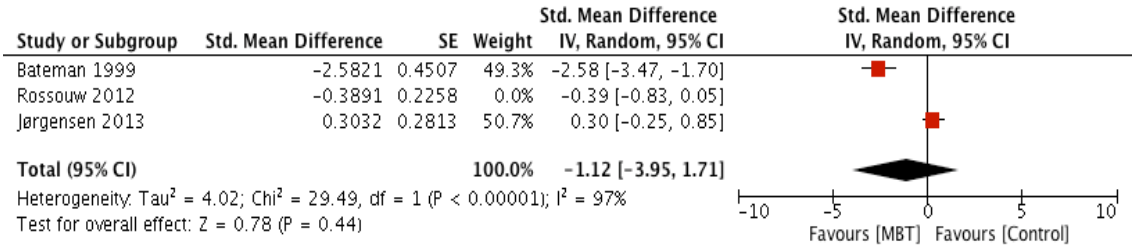



Figure 5: Forest plot showing estimate of the size of controlled intervention change in anxiety with adolescents removed.




**Depression.** Four studies contributed a depression symptom outcome representing n=310 participants (MBT n=169/control n=141). The analysis revealed a very large but non-significant effect size in favour of MBT treatment (SMD = -1.65, CI=-3.31, 0.01). Heterogeneity was significant $X^2$ 97.56, $I^2=97\%$, p<0.01. Effect sizes were reduced to moderate but remained non-significant when limited to treatment studies involving adults only (SMD = -0.73, CI=-1.73, 0.27). Heterogeneity also remained significant in this sensitivity analysis, $X^2$ 20.37, $I^2=90\%$, p<0.01.

Figure 6: Forest plot showing estimate of the size of controlled intervention change in depression for both adult and adolescent studies.

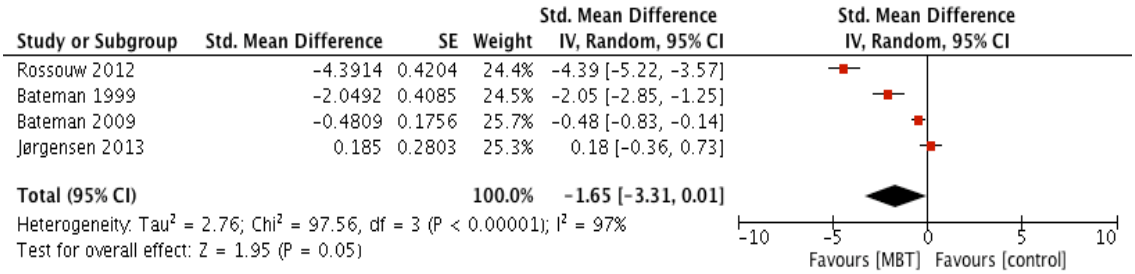
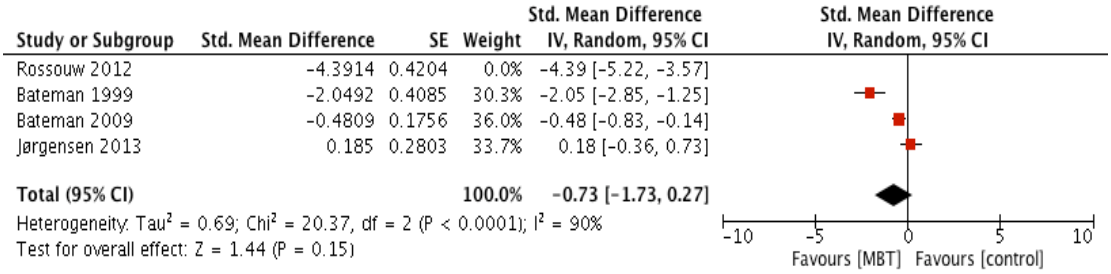
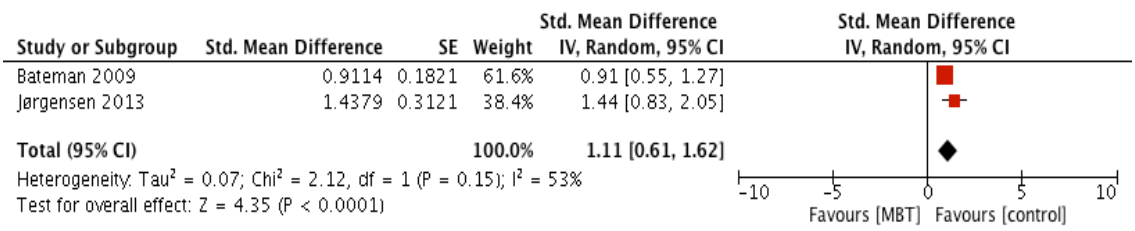



Figure 7: Forest plot showing estimate of the size of controlled intervention change in depression with adolescents removed.



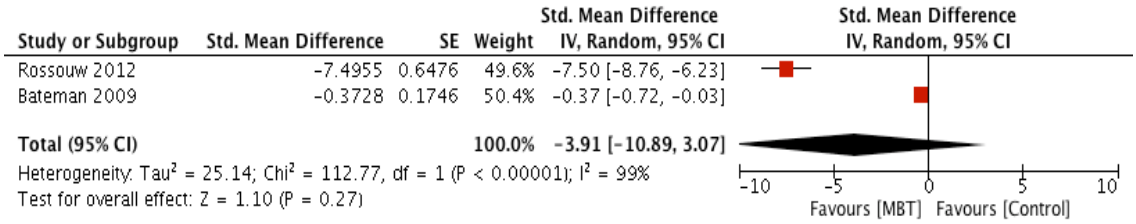

**Impairment.** Two studies contributed a measure of impairment representing n=192 participants (MBT n=110/control n=82). The analysis revealed a large and significant effect size in favour of the control group (SMD = 1.11, CI=0.61, 1.62). Heterogeneity was not significant $X^2$ 2.12, $I^2$=*53%*, p>0.05. There were insignificant studies to explore the influence of developmental age on impairment.

Figure 8: Forest plot showing estimate of the size of controlled intervention change in impairment for two adult studies.



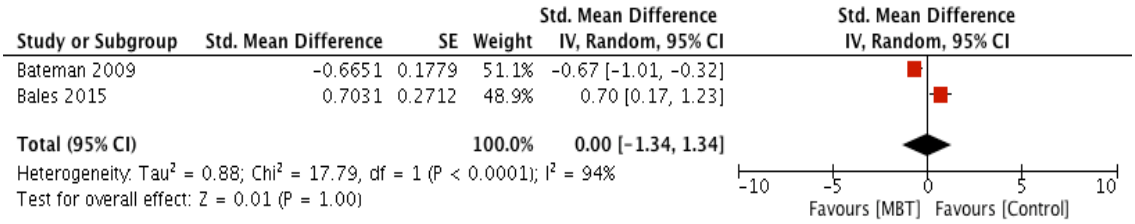
**Suicidal attempts/Self-Harm.** Two studies contributed a measure of self-harm representing n=214 participants (MBT n=111/control n=103). The analysis revealed a very large but non-significant effect size in favour of MBT treatment (SMD = -3.91, CI=-10.89, 3.07). Heterogeneity was significant $X^2$ 112.77, $I^2$=99%, p<0.01. There were insignificant studies to explore the influence of developmental age on suicidal attempts/self-harm incidents.

Figure 9: Forest plot showing estimate of the size of controlled intervention change in suicidal attempts/self-harm for one adult and one adolescent study.




**Interpersonal Functioning.** Two studies contributed a measure of interpersonal functioning representing n=192 participants (MBT n=100/control n=92). The analysis revealed no effect favouring MBT treatment or Control (SMD = 0, CI=-1.34, 1.34). Heterogeneity was significant $X^2$ 17.79, $I^2$=94%, p<0.01. There were insignificant studies to explore the influence of developmental age on interpersonal functioning.

Figure 10: Forest plot showing estimate of the size of controlled intervention change in interpersonal functioning for two adult studies.




### 2.4.1. Risk of Bias

Considering the findings using the Cochrane risk of bias tool, the overall risk of bias appeared mostly unclear. Studies were on the whole considered to have an unclear risk of bias due to one being a matched controlled trial, unclear methods of randomisation, allocation, blinding and self-rating. Furthermore, the highest area of risk of bias was due to incomplete outcome data, no declaration statement or protocol, lack of blinding, fluctuation in participant numbers as well as extreme baseline differences between trial arms.

Figure 11: Risk of bias outcome

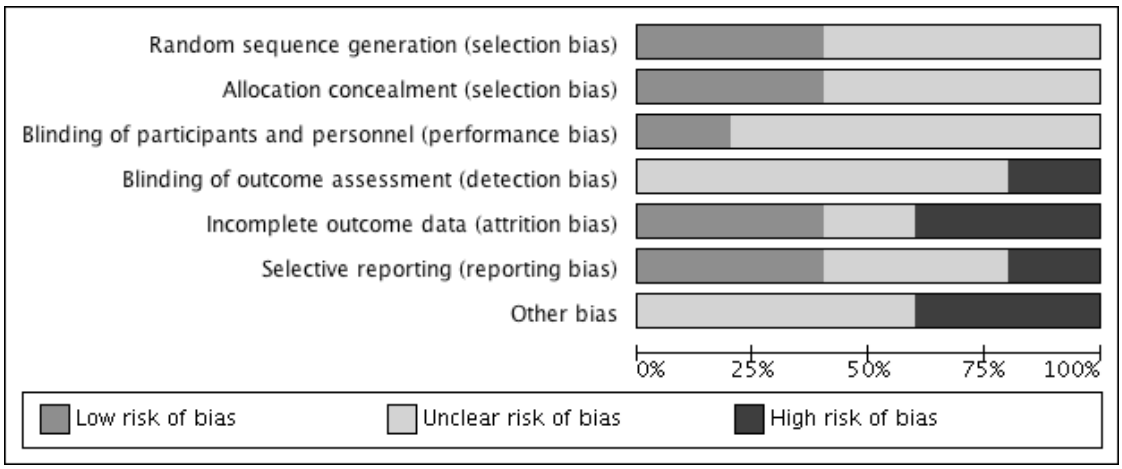
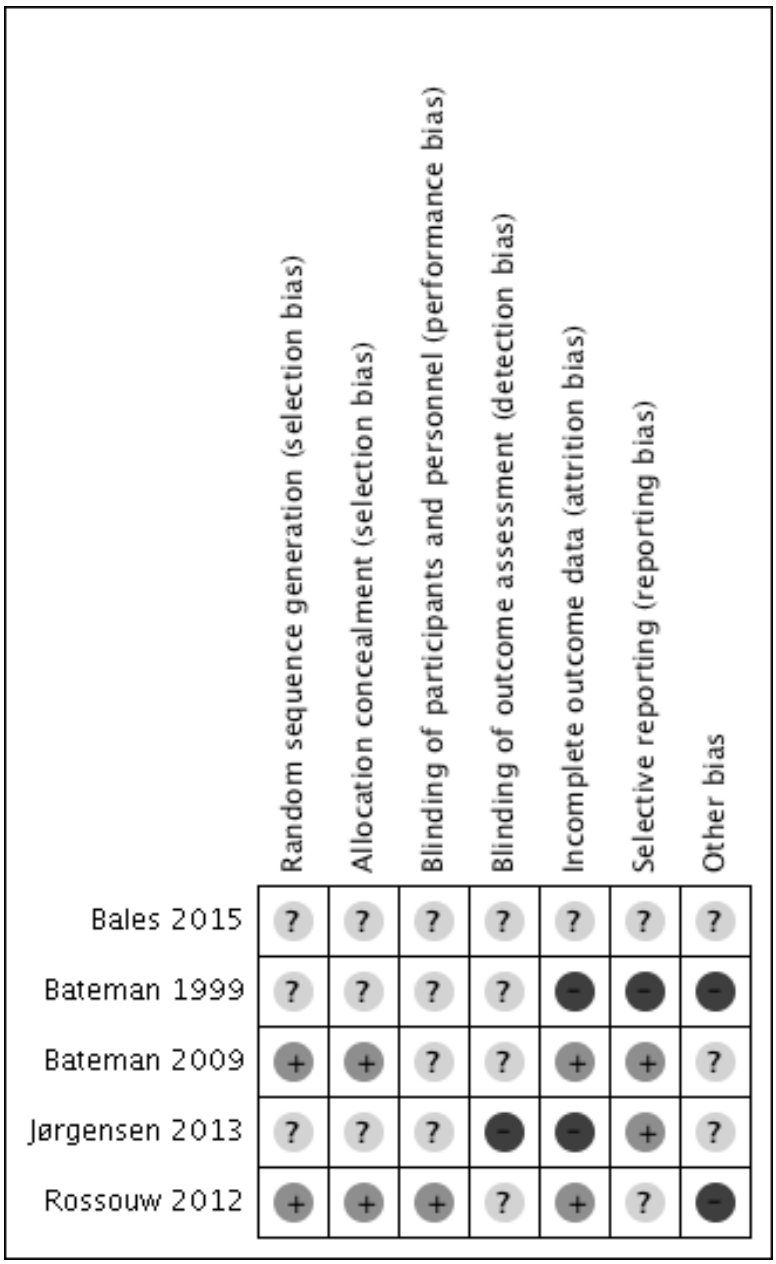


Figure 12: Risk of bias outcome.




## 2.5. DISCUSSION

The present meta-analyses aimed to evaluate the efficacy of MBT when used as a treatment approach for people with BPD. In addition, it aimed to compare treatment efficacy for adults when compared to adolescents with the view to investigate which of the two groups derived greater benefit from the treatment. Overall, the meta-analyses found that

MBT is superior to treatment as usual (as well as other forms of minimal treatment or waiting list such as treatment as usual, clinical management active and community treatment) when used as an intervention for BPD within both adult and adolescent populations, the latter with emerging BPD. Given the few studies included in this meta-analysis, caution must be taken when interpreting the findings.

When considering participants symptoms, analyses revealed a large and significant effect in favour of MBT treatment when compared to control conditions. The improvement in symptoms may be attributable to the treatment focus on psychological functions relevant to BPD (e.g., reflecting on mental states involving self and other) (Bateman & Fonagy, 2009), which may suggest that MBT is effective in moderating BPD symptoms.

Effect sizes were enhanced but non-significant when limited to randomised controlled designs, however, sensitivity analyses revealed statistically significant differences in relation to heterogeneity. When restricted to studies involving adults only, effect sizes were then considerably reduced and non-significant, and after sensitivity analyses heterogeneity was not significant. The change in effect from significant in regards to symptoms to non-significant after the removal of the adolescent study could be possibly attributed to the fact that the adolescent study indicated substantial treatment gain when compared to the adult studies.

Furthermore, the analyses revealed a large but non-significant effect size in favour of MBT treatment in relation to anxiety. Heterogeneity was also significant. Effect sizes were enhanced but remained non-

significant when limited to treatment studies involving adults only. Heterogeneity was however significant within sensitivity analysis. Analyses of depression also revealed a very large but non-significant effect size in favour of MBT treatment. Heterogeneity was, however, significant and effect sizes were reduced to moderate but remained non-significant when limited to treatment studies involving adults. Heterogeneity also remained significant within sensitivity analysis. There were insignificant studies to explore the influence of developmental age on impairment, suicidal attempts/self-harm and interpersonal functioning.

Furthermore, analyses of impairment revealed a large and significant effect size in favour of the control group. Heterogeneity however, was not significant. It could be considered unusual to find that improvement in symptoms did not correspond with improvement in level of impairment. It is possible that this may be attributable to two of the measures relating to symptoms (Bateman & Fonagy, 2009; Jorgensen et al., 2013) being self-rated whereas all included impairment measures were therapist rated.

Analyses of suicidal attempts/self-harm revealed a very large but non-significant effect size in favour of MBT treatment. Heterogeneity was however significant. Interestingly, however analyses of interpersonal functioning revealed no effect favouring MBT treatment or Control resulting in diametrically opposed results. Heterogeneity however was significant.

Overall, the meta-analyses revealed large but non-significant effect sizes and considerable degree of heterogeneity when evaluating the identified treatment outcomes. The moderate to high heterogeneity found

in most outcomes could be explained by the variability in baseline characteristics, particularly given that this study examined both adolescent and adult populations.

The current meta-analyses provided evidence of the efficacy of long-term psychotherapeutic treatment for patients with BPD. These findings are partially in line with those of Kvarstein et al. (2015) where using a longitudinal designed assessed treatment effects for BPD patients before and after switching to MBT found large effect sizes in favour of MBT on symptoms, however, they also found statistically significant reduction in self-harm incidents which was not confirmed in the current meta-analyses, given that only very large effect sizes in favour of MBT were found. Notably, however, only two studies (one adult and one adolescent) were included in this particular analysis. Furthermore, in relation to interpersonal functioning, Kvarstein et al. (2015) also found large effect sizes in favour of MBT, whereas the current study revealed no effect favouring either MBT or Control.

Given the small number of studies examined in the current study, and considering that results were often conflictual it is very difficult to fully appraise the findings. Furthermore, due to only five studies contributing to the meta-analyses, it was not possible to conduct a meta-regression, which could have been useful in relation to exploring putative moderators of effect sizes. It is also worth noting that the examination of risk of bias yielded an overall unclear risk for the majority of studies, which may reduce confidence in the overall quality of the included studies.

Another point to consider, as highlighted by Kvarstein et al. (2015), is that it appears that the UK based RCTs (Bateman & Fonagy, 1999;

Bateman & Fonagy, 2009; Rossouw & Fonagy, 2012) have clear consensus in regards to efficacy. Outside of the UK, positive outcomes have been shown in a Dutch naturalistic study (Bales et al., 2015), however, the benefits reported in the Danish trial (Jorgensen et al., 2013) were smaller in comparison. It may be worth considering whether the integrity of the programme is higher within the UK where it was developed or other factors may have confounded the results within the Danish trial, particularly given that they had employed a combined method of treatment using MBT and supportive psychotherapy.

## 2.6. STRENGTHS AND LIMITATIONS

This is the first meta-analysis examining the efficacy of MBT alone for people with BPD.

The main limitation relates to the small number of studies used in the analyses, particularly since only one study contributed to the adolescent data. In addition, no specific mentalizing measures were employed which may have indicated whether this specific key treatment domain (mentalizing capability) had been targeted or indeed may have mediated therapeutic gains. Furthermore, outcome measures used in the studies included in this review were mostly based on self-report; therefore there is always an element of bias in relation to this as Ebner-Priemer et al. (2006) suggested that individuals with BPD are more likely to show an overall negative valence-dependent recall pattern. Furthermore, whilst symptoms were measured separately from other problems such as anxiety, depression, impairment, suicidal attempts/self-harm and

interpersonal functioning, it is possible that given that these issues can all be considered ‘symptoms’ relevant to BPD, it is possible that there may have been a convergence in relation to measuring the same construct.

Additionally, some of the main investigators of the reported trials were also involved in the development of MBT; therefore this may have decreased the objectivity of the particular research studies. When considering the findings, it is also worth noting that there was variability in relation to settings where the treatment was delivered, given that some studies used outpatient vs. partial hospitalization or day hospital settings, therefore this may have introduced confounders. Furthermore, one included study was a matched-control design, which lacks internal validity when compared to RCTs. All studies reported therapist competency and experience, and four (Bales et al., 2015; Bateman & Fonagy, 1999; Jorgensen et al., 2013; Rossouw & Fonagy, 2012) explicitly reported monitoring adherence, however, standardised measurable data in relation to this was not provided. As such, given the variability in findings in the study outside of the UK as suggested by Kvarstein et al. (2015), these studies are limited by the lack of measurement of therapist adherence to MBT. Similarly, at present, there is a lack objective measures of outcomes to therapist adherence. It was not possible to evaluate the impact of publication bias or drop-out using funnel plots attributed to the small number of studies available for this review.

## 2.7. CONCLUSIONS AND RECOMMENDATIONS

There were limited studies with which to draw firm conclusions, however using the data available within this meta-analyses preliminary

evidence suggests that MBT is an effective treatment for BPD both for adults as well as adolescents, with the latter deriving greater benefit. It is worth noting however, that MBT-A included family therapy, which may have potentially further increased the overall benefits derived for the adolescent sample. Furthermore, since the adolescents presented with emerging symptoms of BPD, presenting problems may have been easier to treat.

In view of these findings, to advance the current literature more research using RCTs with larger sample sizes is needed examining the efficacy of MBT, both within adult and adolescent populations, specifically research independent from programme developers. In relation to clinical implications, given the findings within this meta-analyses along with the long term incremental post treatment gain shown in a follow-up study (Bateman & Fonagy, 2008a), MBT should be considered an effective treatment option for people with BPD, as well as a treatment option for early intervention for young people with BPD traits. However, additional long-term follow-up studies are required to confirm the continuation of treatment gains.

Emerging evidence suggests that MBT can be applied to ASPD (i.e. McGauley et al., 2011; Bateman, et al., 2016). There is also robust evidence that ASPD and BPD are highly comorbid (Torgersen et al., 2008; Coid, Hickey, Kahtan, Zhang, & Yang, 2007; Black, Gunter, Loveless, Allen, & Sieleni, 2010; Howard, Khalifa, Duggan, 2014), furthermore both disorders are classified according the DSM-5 cluster B disorders (APA, 2014). It is unsurprising therefore that deficit in mentalizing processes have been found in people with comorbid ASPD and BPD (Bateman &

Fonagy, 2008). In view of this, the current study could potentially inform treatment options for people with ASPD given that specific outcome measures reported in the study may be relevant for people with both ASPD and BPD. Furthermore, it is recognised that people with ASPD have specific impairments in relation to 'self/other' mentalizing which concerns empathic understanding of others (Bateman and Fonagy; 2013). Whilst the current evidence base for MBT is based on scientific evidence base for BPD, adaptations have been undertaken specifically targeting mentalizing problems relevant for people with ASPD. In view of this, further research examining the application of MBT for ASPD is needed, specifically using randomised controlled trials.

# Chapter Three

## Empirical Investigation: Mentalizing, attachment style and schema as predictors of antisocial personality disorder in young offenders

**ABSTRACT**

**Objectives.** Impaired mentalizing capability, attachment style and early maladaptive schemas (EMS) have been associated with antisocial personality disorder (ASPD). The current study aimed to explore whether these particular psychological constructs were associated with ASPD in a sample of young offenders.

**Method.** Young offenders (N=79) ages 18-21 years were recruited from a Young Offender Institution where a high rate of ASPD was expected. In addition to demographic information, participants completed a basic IQ test, and measures for mentalizing capability, attachment style and EMS.

**Results.** The study hypotheses were only partially supported. Contrary to expectation, poorer mentalizing scores did not contribute significantly to the prediction of ASPD. However, as predicted, higher scores on the anxious attachment measure were associated with ASPD. Also in support of the study hypotheses, ASPD was significantly related to EMS domains *Disconnection & Rejection* (mistrust-abuse); *Impaired Autonomy & Performance* (dependence), and *Impaired Limits (entitlement).*

**Conclusion.** These findings demonstrate that adverse attachment styles and specific EMS domains contribute to predicting ASPD in young male offenders. Inferential analyses confirmed that intellectual functioning did not influence performance on any measures. These findings provide some support in relation to identifying specific treatment targets for this group of hard to reach young offenders.

## 3.1. INTRODUCTION

Individuals with a diagnosis of Antisocial Personality Disorder (ASPD) are described as presenting with a *'pervasive pattern of disregard for, and violation of, the rights of others that begins in childhood or early adolescence and continues into adulthood'* (American Psychiatric Association, 1994, p.645). Under current diagnostic guidelines, ASPD is not formally diagnosed prior to age 18, though conduct disorder which is required to diagnose the condition, may manifest earlier on (American Psychiatric Association, 2013) (Appendix F).

Recent epidemiological findings suggest that prevalence of ASPD in the general population is at least 4% (Coid et al., 2016), and substantially higher in custodial settings. In prison samples, a meta-analysis reported rates of 47% in men and 21% in women (Fazel & Danesh, 2002). Violent behaviour is associated with ASPD (Coid et al., 2016). In 2013, the Ministry of Justice (MoJ) reported that imprisoned young offenders aged 18-20 were involved in around 25% of assaults, and 31% of fights in the UK (Ministry of Justice, 2014). Furthermore, they were more likely to serve sentences for violent offences (Ministry of Justice, 2017). Consequently, recidivism rates for this population were also higher (56%) than for prisoners' aged 21 and over (45.6%) (Ministry of Justice, 2013). Paradoxically, whilst there has been a reduction in the number of custodial sentences for 18-20 year olds since 2011, this is negated by the fact that the average sentence length has increased by 42% (Ministry of Justice, 2017), potentially indicating a rise in seriousness of offending.

ASPD places a significant burden on society (Coid, 2003), both financially and emotionally for those involved with affected individuals (NICE, 2009). People with ASPD often have a history of behaviour that results in sustained contact with criminal justice authorities, health and supportive services (Coid et al., 2016; Kendall et al., 2009). This has major public health implications including violent crime, unemployment, homelessness, family violence (Moran, 1999), psychiatric and substance misuse comorbidity (Ogloff, Talevski, Lemphers, Wood, & Simmons, 2015; Tutuncu, Oguz, Ates, Ercan, & Semiz, 2015), social and medical problems (Black, Baumgard, & Bell, 1995), imprisonment and reconviction (Fazel & Danesh, 2002; Moran, 1999; Shepherd, Campbell, & Ogloff, 2016) and, in some cases, early unnatural death, mostly attributed to reckless behaviour (Black, Baumgard, Bell, & Kao, 1996; Goldstein & Grant, 2009; Moran, 1999; Repo-Tiihonen, Virkkunen, & Tiihonen, 2001).

There is a wealth of research examining the aetiology and associated risk factors for ASPD. Whilst there is no clear consensus, several studies have identified that psychosocial factors, genetic vulnerabilities and neurobiological impairments contribute to the development of the condition (Checknita et al., 2015; Farrington, 1995; Gregory et al., 2012; Luntz & Widom, 1994; Moffitt, Caspi, Harrington, & Milne, 2002; Pemment, 2013). Understanding specific impairments that potentially contribute to violence and antisocial behaviour in young offenders may support the identification of specific treatment targets for psychotherapeutic interventions.

### 3.1.1. Mentalizing

Mentalization broadly refers to the process whereby an individual "implicitly and explicitly interprets their own actions and those of others as meaningful, based on intentional mental states such as desires, needs, feelings, beliefs, and reasons" (Bateman & Fonagy, 2004, p.21). Bateman, Bolton, and Fonagy (2013) recognise that individuals with ASPD may have difficulties undertaking explicit mentalizing which requires reflecting on situations or evaluating and appraising one's own thoughts against another's. This is pertinent since people with ASPD struggle to attach emotional salience to a situation (Bateman et al., 2013). Furthermore, the ability to correctly identify social cues supports prosocial interaction (Blair, Colledge, Murray, & Mitchell, 2001; Corden, Critchley, Skuse, & Dolan, 2006; Nichols, 2001) since distress related cues play a role in preventing antisocial behaviour (Blair et al., 2001) by provoking empathy (Marsh, Ambady, & Kleck, 2005).

Studies examining facial affect recognition in a range of antisocial samples have found impairments in young offenders (Bowen, Morgan, Moore, & van Goozen, 2014), adolescents with conduct disorder (Fairchild, Van Goozen, Calder, Stollery, & Goodyer, 2009), children with psychopathic tendencies (Blair et al., 2001), adult prisoners (Robinson et al., 2012) and psychopathic and non-psychopathic adult prisoners (Dolan & Fullam, 2004). Specifically, studies report that antisocial populations have difficulties recognising negative facial emotional expressions such as fearful (Marsh & Blair, 2008; Robinson et al., 2012), sad (Blair et al., 2001; Dolan & Fullam, 2004; Marsh & Blair, 2008; Robinson et al., 2012), surprised (Marsh & Blair, 2008) and angry expressions (Robinson et al.,

2012). Despite this, other studies examining psychopathic and non-psychopathic offenders reported no impairments (Glass & Newman, 2006; Richell et al., 2003). Collectively, the findings may confirm that recognising the emotional expressions of others does not curtail violent impulses in people with ASPD features (Bateman et al., 2013).

Empirical evidence examining the specific contribution of mentalizing in relation to ASPD is limited. Furthermore, whilst several measures are available to assess mentalizing capability in adults (Luyten, Fonagy, Lowyck, & Vermote, 2012), there is no single reliable and valid mentalizing measure (Choi-Kain & Gunderson, 2008). Moreover, since the construct is multidimensional (Allen, Fonagy, & Bateman, 2008; Fonagy & Luyten, 2012) involving intersecting dimensions (i.e. implicit/explicit; internal/external; self/other; and cognitive/affective processes), available studies have utilised a range of measures to evaluate mentalizing in forensic populations. In line with the theoretical framework for mentalizing and ASPD, Newbury-Helps et al. (2016) found that offenders have mentalizing deficits which include difficulties recognising external cues relating to cognitive and affective features, perspective taking, hypomentalizing and non-mentalizing. In relation to limitations, the battery of measures utilised for discerning mentalizing in this study rely on executive functioning being matched across participants, however, this was not achieved. Reflective functioning, which is considered a concept of mentalizing, relates to the capacity to understand behaviour based on mental states, was also assessed in two other studies. Levinson and Fonagy (2004) reported significantly lower mentalizing capability in adult criminal offenders when compared to personality disordered patients and

a control group. The study also found that violent offenders achieved comparatively lower scores than non-violent offenders. Similarly, another study by Möller et al., (2014) reported low levels of mentalizing in incarcerated young offenders.

### 3.1.2. Attachment

People with ASPD are more likely to have experienced a disturbance to their attachment system in childhood, which may have an adverse impact on the development of their neurobiological and psychological defenses (Bateman & Fonagy, 2008). Consequently, this interferes with their capacity to mentalize and decreases their threshold for emotional reactivity (Yakeley & Williams, 2014). Furthermore, there is a significant evidence base that links disordered attachments to violence in antisocial individuals (McGauley, et al., 2011).

Attachment theory proposes that the quality of a caregiver's response during the development of an infant greatly impacts how the child views the world in relation to perceived threat (Bowlby, 1969). ASPD is associated with experiences of abuse, conflict, trauma, physical or emotional neglect or other factors associated with poor and/or inconsistent and harsh parenting practices (Caspi et al., 2002; Cohen, 2008; Duggan, 2009; Hodgins, Kratzer, & McNeil, 2001; Luntz & Widom, 1994; Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003), which may contribute to the development of adverse attachment styles. Consequently, in adulthood attachment style remain associated with the psychological and biological systems that regulate threat appraisal, stress response and recovery (Bowlby, 1969). As such, negative experiences in

early childhood may impact an individual's ability to form or maintain successful relationships in later life, and this may contribute to increased violence. Yakeley and Williams (2014) suggest that ASPD can be conceptualised as a developmental disorder where early attachment experiences are relevant. Studies supporting this claim found sub-optimal attachment patterns in offenders with ASPD, in particular high levels of adverse attachment styles in violent males (Ogilvie, Newman, Todd, & Peck, 2014; van IJzendoorn et al., 1997; Adshead, 2004; Levinson & Fonagy, 2004). However, interestingly other studies found no differences in attachment style in sexual and violent offenders when compared to a community sample (Baker & Beech, 2004). Taken together, the weight of evidence reinforces the link between attachment styles and offending behaviour, thus supporting the growing evidence base highlighting these specific impairments in people with ASPD.

### 3.1.3. Early Maladaptive Schemas

Young, Klosko, and Weishaar (2003) have identified 18 early maladaptive schemas (EMS) organised according to five schema domains of unmet core needs (Appendix G). EMS are emotional and cognitive self-defeating patterns which begin in early childhood and continue throughout life (Young et al., 2003). In adulthood, these unhelpful schemas are unconsciously activated by life events, which an individual perceives as comparable to their adverse childhood experiences. Consequently, this affects emotional processing and influences behaviour. Adverse attachment experiences are associated with the development of EMS (Simard et al., 2011). Consistent with EMS theoretical conceptualisations

(Beck, Freeman, & Associates, 1990; Young et al., 2003), several authors have associated ASPD and aggressive behaviour with schema domains relating to *Disconnection & Rejection* (Ball & Cecero, 2001; Chakhssi, Bernstein, & Ruiter, 2014; Corral & Calvete, 2014; Gay, Harding, Jackson, Burns, & Baker, 2013; Gilbert & Daffern, 2013; Özdel et al., 2015; Petrocelli, Glaser, Calhoun, & Campbell, 2001; Shorey, Elmquist, Anderson, & Stuart, 2015; Tremblay & Dozois, 2009); *Impaired Autonomy & Performance* (Gay et al., 2013; Kachadourian et al., 2013; Özdel et al., 2015) and *Impaired Limits* (Chakhssi et al., 2014; Corral & Calvete, 2014; Gilbert & Daffern, 2013; Loper, 2003; Özdel et al., 2015; Shorey et al., 2015; Tremblay & Dozois, 2009). However, other studies reported no significant relationships between ASPD and specific EMS (Nordahl, Holthe, & Haugum, 2005; Thimm, 2011). Overall, the findings indicate that specific EMS domains may be relevant for violence and aggressive behaviour.

### 3.1.4. Aims and Hypotheses

The majority of individuals receiving treatment for ASPD are involved in the criminal justice system where the predominant treatment approach concerns targeting criminal behaviour (National Collaborating Centre for Mental Health (UK), 2010). Whilst it is acknowledged that there is a lack of effective psychological treatment options available for this population (Gibbon et al., 2010; NICE, 2009), there is developing evidence to suggest that ASPD is treatable (Meloy & Yakeley, 2013). Through understanding psychological mechanisms underlying the disorder, treatment targets can be identified which may enable services to

prioritise the most suitable psychotherapeutic interventions for young offenders. The current study aimed to address this gap in the literature by exploring mentalizing capability, attachment style and early maladaptive schemas (EMS) in young males offenders. Consistent with previous literature (e.g. Newbury-Helps et al., 2016), it was hypothesized that deficits in mentalizing capability would be associated with ASPD. Second, in line with the literature (e.g., Adshead, 2004), it was hypothesized that adverse attachment styles would be associated with greater severity in ASPD symptomatology. Finally, based on theoretical conceptualizations (Young et al., 2003) and results from previous EMS studies (e.g. Özdel et al., 2015), it was hypothesized that greater severity in ASPD symptomatology would be associated with higher scores on EMS domains of *Disconnection and Rejection, Impaired Autonomy* and *Impaired Limits*.

## 3.2. METHOD

Ethical approval was granted by the National Offender Management Services (NOMS), National Research Committee (NRC) (reference No: 2015-218) (Appendix N) and University of Nottingham, Faculty of Medicine & Health Sciences Research Ethics Committee (Reference No: J12032015 SoM PAPsych DFP) (Appendix L & M).

### 3.2.1. Materials

In addition to the demographic form (e.g. age, ethnicity, educational and offending history) (Appendix K), participants completed a basic cognitive test, a screening task to identify personality disorder traits, and questionnaires relating to mentalizing capability, attachment style,

and early maladaptive schemas. The administered measures are outlined below.

*National Adult Reading Test (NART) (Nelson, 1982; Nelson & Willison, 1991)*

The NART is an untimed test of premorbid intellectual functioning, which consists of 50 words with atypical phonemic pronunciation. Subjects are required to read each individually presented word aloud. The measure has high construct validity (Crawford, Stewart, Cochrane, Parker, & Besson, 1989), and internal reliability estimates are reported to be above 0.90 (Crawford, Parker, Stewart, Besson, & De Lacey, 1989). Number of correct words were used as a continuous count for statistical analyses, whilst in order to estimate predicted Full Scale Intelligence Quotient (FSIQ) score, NART errors were plotted against WAIS-R predicted IQs using NART scoring manual (Nelson, 1982). The NART was selected over other measures as it has been used successfully with antisocial populations (e.g. Dolan & Fullam, 2004; Levinson & Fonagy, 2004).

*The Personality Diagnostic Questionnaire-4+ (PDQ4+) (Hyler, 1994)*

The PDQ-4+ ASPD subscale is a self-administered measure consisting of 22 true–false questions (one relating to each DSM–IV ASPD criterion). To meet diagnostic threshold for ASPD on the PDQ-4, a minimum of three items from the conduct disorder criteria and four items from the adult criteria need to be endorsed (Guy, Poythress, Douglas, Skeem, & Edens, 2008). In the current study, continuous scores were used in the analyses in order to adopt a dimensional approach to examining ASPD.

Although the PDQ-4+ has also been shown to produce false-positive and false-negative results, receiver operating characteristic (ROC) analysis has shown definitively satisfactory discriminatory capability for the antisocial subscale (Fossati et al., 1998). Additionally, the PDQ-4 ASPD subscale has been found to be reliable (Guy et al., 2008), with acceptable overall accuracy (Davison, Leese, & Taylor, 2001). Having considered psychometric properties of the PDQ4+, this assessment tool was selected over others due to pragmatic reasons since the PDQ4+ is a self-rated assessment whereas, using an interview method such as the International Personality Disorder Examination (IPDE; Loranger, et al., 1994) or Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-II; First, Gibbon, Spitzer, Williams, Benjamin, 1997) would be lengthy and time consuming; as well as being difficult to execute given constraints relating to the prison regime, and the number of participants required for this research study. The PDQ4+ therefore was deemed the most appropriate method capable of screening and assessing the personality pathology spectrum for the purpose of this research study.

'*Reading the Mind in the Eyes' (RME) (Baron-Cohen, Jolliffe, Mortimore, & Robertson, 1997; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001)*

The measure requires subjects to determine mental states of others using a series of 36 photographs of adult faces focusing on the eye region. Participants are asked to read out all four descriptors of complex mental states shown above and below the photograph and thereafter to select the descriptor that best explains what the person in the photo is thinking or feeling. Participants endorse their choice on a separate answer sheet. A

glossary of terms was provided for reference. As a control for facial recognition and attention, participants were requested to state the gender of the person. The measure was scored by totaling the number of correctly identified mental states represented in the photographs. There is currently no valid single assessment tool for mentalization (Choi-Kain & Gunderson, 2008) as such, this particular measure has been selected on the basis that it has been widely used in research studies and has successfully differentiated mentalization impairments in a number of clinical populations including autism (Baron-Cohen et al., 2001), schizophrenia (Schimansky, David, Rössler, & Haker, 2010), brain injury (Stone, Baron-Cohen, Calder, Keane, & Young, 2003), sex offenders (Elsegood & Duff, 2010) and psychopathic offenders (Glass & Newman, 2006; Richell et al., 2003).

*Adult Attachment Scale (Revised) (RAAS) (Collins & Read, 1990)*

This measure is an 18-item questionnaire, which requires participants to rate their 'feelings about close relationships', using a 5-point Likert scale which yields three scores: comfort in relation to closeness (close), capacity to depend on others (depend) and worry of being abandoned (anxiety). Scoring for analyses was conducted by computing each of the three attachment continuous dimensions (close, depend, anxiety) as recommended by Collins (1996). Cronbach's alpha coefficients are reported as follows: ($\alpha$ = .81) for Close, ($\alpha$ = .78) for Depend, and ($\alpha$ = .85) for Anxiety Collins (1996). The original version of the RAAS, the Adult Attachment Scale (AAS) has successfully been used in forensic

populations (e.g. Bogaerts, Vanheule, & Declercq, 2005; Sigre-Leirós, Carvalho, & Nobre, 2015; Tasso, Brown, Griffo, & Maxwell, 2012).

*The Young Schema Questionnaire – Short form (YSQ-SF) (Young, 2005; Young et al., 2003)*

This tool comprises of 90 items, which measure 18 Early Maladaptive Schemas relevant to five schema domains (disconnection & rejection; impaired autonomy & performance; impaired limits; other directedness and over vigilance & inhibition). A six point Likert scale is used to rate items from 1=completely untrue to 6=describes me perfectly, higher scores are indicative of greater presence of EMS. Subjects are required to rate each item with respect to how well the item represents their thoughts and beliefs about themselves. To score the measure, each consecutive five items are assigned to the list of 18 EMS in sequential order (see Appendix G) resulting in continuous scores. Reliability, validity, and factor structure has previously been demonstrated for the YSQ-Short Form (e.g. Welburn, Coristine, Dagg, Pontefract, & Jordan, 2002). The measure has also been successfully used in forensic populations (e.g. Baker & Beech, 2004).

### 3.2.2. Procedure

In the first instance, a pilot study was undertaken with two volunteers (healthy female aged 67 years and male aged 20 years with ASPD and mild learning disability) in order to estimate the time required to complete the battery of assessments and to minimise the risk of participant fatigue and/or distress. Details relating to pilot testing for

measures are shown in Appendix H. Recruitment for the current study took place between October 2015 and April 2016. The researcher identified participants through demographic information (i.e. name, date of birth and wing location) routinely collected by the prison Activities Department. After confirming suitability by liaising with wing staff, participants were approached on the wing by the researcher. They were provided with an explanation of the study and an information sheet (Appendix I), and were given the opportunity to read these and to ask questions. Thereafter, a convenient time to conduct each assessment was arranged in advance, ensuring minimal disruption to both participants' and supporting staff members' daily routine. Assessments took place either in a wing office or meeting room within an on-site healthcare facility, depending on availability. After signing a consent form (Appendix J), participants were asked to take part in a short interview to provide demographic information (Appendix K). Participants were then tested individually using the NART (Nelson, 1982; Nelson & Willison, 1991) as a proxy measure of intellectual functioning (IQ). ASPD traits were measured using the PDQ4+ and psychometric measures were administered to mentalizing capability, attachment styles and presence of EMS. To accommodate differences in ability, where indicated, the researcher endorsed assessments on behalf of the participant, however, in most cases, participants choose to self-endorse in the presence of the researcher. The entire process took approximately an hour, during which time participants were offered a break half way through the session. In some instances the researcher had to return on another day to complete assessments when it was not possible to complete the entire assessment

battery in one session. In other cases, under the supervision of the researcher, up to three participants completed the measures in the same room, except for the NART, which was administered individually.

### 3.2.3. Participants

Subjects were recruited from a Young Offender Institution (YOI) within Her Majesty's Prison Service (HMPS). The establishment is a dual-purpose prison holding both young and adult offenders. The approximate population of young offenders at the time of undertaking the research was N=120. All young offenders aged between the ages 18 – 21 with sufficient command of verbal English were eligible to participate. Participants were excluded if they were in segregation or were unable to provide consent (as assessed by Prison Officers), due to insufficient command of English language. Of the 98 persons approached, n=18 declined to participate in the research. The entire sample was male, 71.3% White, 3.8% Mixed/Multiple ethic background, 2.5% Asian, 20% Black, 1.3% other and 1.3% declined to answer. Participants reported convictions for a diverse range of criminal offences, including violence (58.8%), drugs (51.2%), theft (38.8%), vandalism (36.3%), fraud or forgery (8.8%), racially or religious aggravated offences (5.0%), sexual offences (1.3%) and driving or 'other' offences (26.3%). The average age was 19.64 years (SD = 1.03 years; range 18-21); and the average length of months spent in institutions was 20.96 (SD = 20.09 months; range 1 to 84 months). More than half of participants (n=48; 60%) reported that they were raised by biological parents, whilst (n=32; 40%) also had experience living in foster care. Predicted FSIQ scores were approximately within the normal range

(69-117). N=63 participants completed the NART, the remaining n=9 refused outright, n=5 refused on the basis of dyslexia, and there was no opportunity to complete the assessment for n=3. The estimated sample size for this study was informed by prior studies in addition to power calculations. Shorey, Stuart, Anderson, & Strong (2013) used the Young Schema Questionnaire (Young, 2005) to examine Early Maladaptive Schemas and found a medium effect size (d = 0.49) with a sample size of 97. In view of this, power calculations were carried out using G*Power version 3.1 software (Faul, Erdfelder, Lang, & Buchner, 2007) stipulating α = 5% criteria and desired power = 80%. Results indicated that for Multiple Regression Analyses using between six to nine predictor variables, a sample size of 98 - 114 participants would find the assumed medium effect size. The achieved sample size within the current study was N=79.

### 3.2.4. Data analysis

Statistical analysis was carried out using Statistical Package for the Social Sciences (SPSS) version 20.0. Preliminary analyses, descriptive statistics, Pearson's product-moment correlation coefficient and hierarchical multiple regression analyses were carried out. First, a visual inspection of the associated histograms, normal Q-Q plots and box plots were examined. Parametric tests were used after confirming that data met acceptable standards of normality. Second, preliminary diagnostic statistics were used to test for assumptions of hierarchical regression analyses and to ascertain whether homoscedasticity, linearity and independence of residuals were violated. Although all EMS revealed

moderate to strong statistically significant inter-correlations (*rs* .41 and .75), the assumption of non-perfect collinearity was met for all regression models (tolerance >.2 and VIF < 10). Furthermore, a visual inspection of normality plots indicated that error terms were normally distributed and the assumption of independent errors was met (Durbin Watson test for all three models, 1.87, 1.89 and 1.67). To assess for outliers, the standardised residuals were checked and found to be within an acceptable range (– 3 and 3). Third, Cronbach Alpha and Kuder-Richardson 20 (K-R 20) coefficients, the latter which is a computational equivalent of the Cronbach Alpha coefficient for scales composed of dichotomous items, was used to estimate the scales internal consistency reliabilities. At this juncture, the decision was made to exclude the 'Depend' attachment subscale from analysis due to very low Cronbach's alpha score (α=.47). Table 1 provides an overview of mean scores, standard deviations and K-R 20/Cronbach's Alpha for the outcome variable (ASPD) and predictor variables (mentalizing, attachment and EMS domains). Fourth, a correlational analysis of the ASPD variable with demographic variables was provided. Fifth, a correlational analysis of the ASPD variable with predictor variables including IQ was provided. Finally, hierarchical regression analyses were carried out to explore the relationship of the predictor variables (mentalizing, attachment and each of the EMS domains) in relation to ASPD. The Enter method was used for the mentalizing (first) and IQ (last) measures and the stepwise method on all other predictor variables. IQ score was entered in the final step of the regression in order to ascertain whether intellectual functioning had an effect on variance within the models.

A preliminary review of the data confirmed that the large majority of participants (n=65/79) met the diagnostic criteria for ASPD. Therefore, following a preliminary statistical test confirming homogeneity of distributional properties, the decision was made to combine the groups into a single group of N=79. Furthermore, evidence that ASPD is dimensional proposes that it is best studied using continuous measures, as dichotomising individuals into ASPD versus non-ASPD groups will typically result in decreased statistical power (Marcus, Lilienfeld, Edens, & Poythress, 2006). The current study therefore examined personality disorder symptomology utilising a dimensional approach in which all scores in the range were considered in order to account for sub-threshold levels of pathology.

## 3.3. RESULTS

### 3.3.1. Descriptive statistics

Descriptive results (means, standard deviations, ranges, Kuder-Richardson 20 and Cronbach's alpha) for the ASPD dimension, mentalizing scores, attachment dimensions and individual EMS are reported in Table 1 overleaf. For the 18 individual EMS, scores were highest on Mistrust/Abuse, Subjugation, Dependence, Entitlement, Social Isolation and Punitiveness.

Table 1. Descriptive statistics for psychometric measures

| Scales | n | % | Mean | Range | SD | α |
|---|---|---|---|---|---|---|
| **PDQ-4+** | | | | | | |
| Antisocial subscale | 77 | 96.2 | 10.73 | 0 - 19 | 5.32 | .73[1] |
| **RME** | 78 | 97.4 | 20.81 | 8 - 31 | 4.99 | .68 |
| **RAAS** | | | | | | |
| Close | 79 | 98.8 | 3.15 | 1 - 5 | 0.78 | .60 |
| Anxiety | 79 | 98.8 | 2.48 | 1 - 5 | 1.02 | .84 |
| **YSQ-SF** | | | | | | |
| *Disconnection & rejection* | 79 | 98.8 | 68.72 | 30 - 119 | 21.12 | .88 |
| Emotional deprivation | 79 | 98.8 | 12.00 | 5 – 24 | 5.18 | .68 |
| Abandonment | 79 | 98.8 | 11.92 | 5 – 24 | 5.07 | .68 |
| Mistrust/Abuse | 79 | 98.8 | 16.16 | 5 – 27 | 5.09 | .53 |
| Social Isolation | 79 | 98.8 | 14.65 | 5 – 28 | 5.89 | .72 |
| Defectiveness | 79 | 98.8 | 13.99 | 5 – 30 | 5.92 | .67 |
| *Impaired autonomy & performance* | 76 | 95.0 | 52.01 | 20 – 104 | 17.78 | .89 |
| Failure | 79 | 98.8 | 13.70 | 5 – 27 | 4.86 | .56 |
| Dependence | 79 | 98.8 | 15.06 | 5 – 27 | 5.66 | .70 |
| Vulnerability | 79 | 98.8 | 13.41 | 5 – 30 | 5.68 | .74 |
| Enmeshment | 76 | 95.0 | 10.22 | 5 – 26 | 5.06 | .73 |
| *Impaired Limits* | 79 | 98.8 | 28.95 | 10 – 50 | 9.96 | .79 |
| Entitlement | 79 | 98.8 | 14.97 | 5 – 27 | 5.43 | .67 |
| Insufficient Self-Control | 79 | 98.8 | 13.97 | 5 – 26 | 5.76 | .70 |
| *Other-Directedness* | 79 | 98.8 | 41.23 | 15 – 89 | 15.66 | .90 |
| Subjugation | 79 | 98.8 | 15.38 | 5 – 30 | 5.72 | .72 |
| Self-Sacrifice | 79 | 98.8 | 13.99 | 5 – 29 | 5.66 | .72 |
| Approval-Seeking | 79 | 98.8 | 11.86 | 5 – 30 | 6.00 | .82 |
| *Over vigilance & Inhibition* | 78 | 97.5 | 50.72 | 20 - 101 | 16.48 | .86 |
| Emotional Inhibition | 79 | 98.8 | 12.19 | 5 – 25 | 5.27 | .73 |
| Unrelenting Standards | 79 | 98.8 | 10.96 | 5 – 26 | 4.49 | .60 |
| Negativity/Pessimism | 78 | 97.5 | 13.03 | 5 – 24 | 5.09 | .61 |
| Punitiveness | 79 | 98.8 | 14.32 | 5 - 27 | 5.28 | .65 |

Note: PDQ-4+ =Personality Diagnostic Questionnaire; RAAS= Revised Adult Attachment Scale, RME= Reading the Mind in the Eyes; YSQ-SF= Young Schema Questionnaire Short Form; α = internal consistency. [1]Kuder-Richardson 20 (K-R 20) coefficients used as scales composed of dichotomous items.

Table 2 overleaf shows a preliminary analysis investigating the relationship between demographic variables using Pearson's product-moment correlation coefficient. The associations between ASPD score, IQ score, number of years in education, age at first entry into institution, and duration spent in institution were explored. A significant negative correlation was found between number of years in education and ASPD

score ($r$ (74)=-.28, $p<0.05$). There was also a significant negative correlation between age at first ever entry into institution and ASPD score ($r$ (75)=-.34, $p<0.01$), as well as a significant positive correlation between age at first ever entry into institution and number of years in education ($r$ (76)=.29, $p<0.05$). There was also a significant positive correlation between duration in institution and ASPD score ($r$= (73)= .37, $p<0.01$). A significant negative correlation was found between years spent in education and duration in institution ($r$=(75)=-.38, $p<0.01$). Finally, a significant negative correlation was found between age at first entry to institution and total number of months spent in institutions ($r$=(75)=-.71, $p<0.01$).

Table 2. Relationship between demographic variables

| Variable | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. ASPD score | - | | | | |
| 2. NART-estimated IQ Score | .03 | - | | | |
| 3. Number of years in education | -.28* | .20 | - | | |
| 4. Age at first ever entry into institution | -.34** | .01 | .29* | - | |
| 5. Duration (months) in institution (s) | .37** | -.01 | -.38** | -.71** | - |

*p<0.05; **p<0.01 (two-tailed)

Table 3 presents bivariate correlations among study variables; all EMS domains were positively and significantly associated with each other. There were no significant associations amongst ASPD with mentalizing scores, attachment style (Close/Anxious) and IQ Score, however, significant associations were found between ASPD and EMS except for the following within the associated domains; *Impaired Autonomy & Performance*: failure and enmeshment; *Other-Directedness*: subjugation

and *Over vigilance & Inhibition*: unrelenting standards and negativity/pessimism. Mentalizing scores were significantly negatively associated with anxious attachment style ($r=(78)=-.24$, $p<0.05$) and Abandonment ($r=(78)=-.26$, $p<0.05$) within the EMS domain for *Disconnection & Rejection*, however, a significant positive association was found between mentalizing scores and IQ scores ($r=(63)=.47$, $p<0.01$). IQ scores were also significantly negatively associated with anxious attachment style ($r=(63)=-.33$, $p<0.01$), and EMS for abandonment ($r=(63)=-.27$, $p<0.05$). Finally, as can be expected, results indicated that anxious attachment style was significantly negatively associated with close attachment style ($r=(79)=-.53$, $p<0.01$) and all EMS.

Table 3. Intercorrelations between IQ Score, Antisocial Personality Disorder Symptoms, Reading the mind in the eyes scores, Adult Attachment Scale – Revised scores (Close/Depend/Anxious) and Young Schema Questionnaire Scores for Early Maladaptive Schemas in young offenders (N=79)

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. ASPD | - | | | | | | | | | | | | | | | | | | | | | | |
| 2. Mentalizing | 0.11 | - | | | | | | | | | | | | | | | | | | | | | |
| 3. Close | -0.10 | 0.20 | - | | | | | | | | | | | | | | | | | | | | |
| 4. Anxious | 0.18 | -0.24* | -0.53** | - | | | | | | | | | | | | | | | | | | | |
| 5. Emotional dep. | 0.25* | -0.20 | -0.45** | 0.68** | - | | | | | | | | | | | | | | | | | | |
| 6. Abandonment | 0.32** | -0.26* | -0.44** | 0.56** | 0.67** | - | | | | | | | | | | | | | | | | | |
| 7. Abuse/Mistrust | 0.31** | -0.04 | -0.37** | 0.33** | 0.24* | 0.38** | - | | | | | | | | | | | | | | | | |
| 8. Social Isolation | 0.31** | 0.01 | -0.28* | 0.59** | 0.61** | 0.58** | 0.43** | - | | | | | | | | | | | | | | | |
| 9. Defectiveness | 0.27* | -0.16 | -0.44** | 0.61** | 0.66** | 0.59** | 0.52** | 0.54** | - | | | | | | | | | | | | | | |
| 10. Failure | 0.20 | 0.04 | -0.41** | 0.53** | 0.65** | 0.61** | 0.43** | 0.67** | 0.63** | - | | | | | | | | | | | | | |
| 11. Dependence | 0.41** | -0.05 | -0.42** | 0.54** | 0.51** | 0.57** | 0.61** | 0.71** | 0.61** | 0.61** | - | | | | | | | | | | | | |
| 12. Vulnerability | 0.32** | -0.05 | -0.49** | 0.70** | 0.69** | 0.67** | 0.46** | 0.59** | 0.70** | 0.67** | 0.56** | - | | | | | | | | | | | |
| 13. Enmeshment | 0.17 | -0.18 | -0.42** | 0.48** | 0.66** | 0.66** | 0.36** | 0.60** | 0.59** | 0.64** | 0.41** | 0.66** | - | | | | | | | | | | |
| 14. Entitlement | 0.32** | -0.02 | -0.28* | 0.31** | 0.37** | 0.54** | 0.51** | 0.50** | 0.56** | 0.52** | 0.64** | 0.49** | 0.44** | - | | | | | | | | | |
| 15. Insufficient self-ctl. | 0.33** | 0.10 | -0.41** | 0.51** | 0.58** | 0.66** | 0.48** | 0.73** | 0.59** | 0.63** | 0.66** | 0.66** | 0.64** | 0.58** | - | | | | | | | | |
| 16. Subjugation | 0.15 | 0.08 | -0.35** | 0.50** | 0.50** | 0.62** | 0.57** | 0.74** | 0.59** | 0.71** | 0.70** | 0.60** | 0.59** | 0.61** | 0.72** | - | | | | | | | |
| 17. Self-Sacrifice | 0.33** | -0.06 | -0.34** | 0.43** | 0.58** | 0.72** | 0.53** | 0.61** | 0.65** | 0.65** | 0.61** | 0.71** | 0.71** | 0.63** | 0.70** | 0.73** | - | | | | | | |
| 18. Approval seeking | 0.28* | -0.11 | -0.45** | 0.56** | 0.63** | 0.70** | 0.49** | 0.68** | 0.60** | 0.68** | 0.65** | 0.67** | 0.73** | 0.60** | 0.73** | 0.71** | 0.71** | - | | | | | |
| 19. Emotional Inhib. | 0.26* | -0.13 | -0.50** | 0.67** | 0.69** | 0.60** | 0.42** | 0.65** | 0.73** | 0.60** | 0.58** | 0.75** | 0.70** | 0.42** | 0.71** | 0.60** | 0.67** | 0.75** | - | | | | |
| 20. Unrelenting stds | 0.16 | -0.10 | -0.34** | 0.35** | 0.55** | 0.61** | 0.28* | 0.45** | 0.49** | 0.58** | 0.43** | 0.54** | 0.67** | 0.45** | 0.66** | 0.59** | 0.61** | 0.51** | 0.55** | - | | | |
| 21. Negativity/Pess. | 0.17 | -0.06 | -0.47** | 0.50** | 0.48** | 0.66** | 0.53** | 0.61** | 0.57** | 0.67** | 0.71** | 0.56** | 0.55** | 0.64** | 0.67** | 0.75** | 0.62** | 0.70** | 0.54** | 0.58** | - | | |
| 22. Punitiveness | 0.24* | 0.04 | -0.36** | 0.44** | 0.55** | 0.64** | 0.44** | 0.69** | 0.44** | 0.60** | 0.69** | 0.52** | 0.53** | 0.57** | 0.67** | 0.66** | 0.62** | 0.69** | 0.54** | 0.52** | 0.67** | - | |
| 23. IQ Score | 0.27 | 0.47** | 0.04 | -0.33** | -0.22 | -0.27* | 0.13 | -0.16 | -0.08 | 0.08 | -0.09 | -0.04 | -0.11 | -0.08 | -0.12 | -0.03 | -0.01 | -0.20 | -0.08 | -0.07 | -0.20 | -0.08 | - |

**p<0.05; **p<0.01 (two-tailed)*

### 3.3.2. Regression Analyses

Findings from the hierarchical multiple regression analyses, shown in Table 4, indicate that the study hypotheses were only partially supported. Contrary to hypothesis one, mentalizing scores did not contribute significantly to the prediction of ASPD in any model (Tables 4-6). In relation to hypothesis two, as predicted, higher scores on the anxious attachment measure entered in the second step were associated with ASPD in almost all stages of the three models (Tables 4-6) for each of the analyses as follows, model one, step two (β=0.39, *P* <0.01), step three (β=0.30, *P* <0.05) and step four (β=0.32, *P* <0.05), model two, step two (β=0.38, *P* <0.01), and model three, step two (β=0.39, *P* <0.01), step three (β=0.27, *P* <0.05), and step four (β=0.30, *P* <0.05). In the first model (Table 4) anxious attachment style significantly accounted for 15% of the variance in relation to predicting ASPD ($R^2$=0.15, *P*<0.01). After adding EMS *Disconnection & Rejection* domain in the third step, the model accounted for 21% ($\Delta R^2$ = 0.07) of the variance, indicating that mistrust-abuse was also a significant predictor of ASPD ($R^2$=0.21, *P*<0.05) which provides support for hypothesis three. In the second model (table 5), which included analysis with *Impaired Autonomy & Performance* EMS domain added in the third step, in addition to anxious attachment style explaining 14% of the variance ($R^2$=0.14, *P*<0.01), only dependence predicted ASPD ($\Delta R^2$ = 0.11; $R^2$=0.25, *P*<0.01). Finally, in the third model (table 6) of the regression analyses, anxious attachment style contributed to 15% of the variance ($R^2$=0.15, *P*<0.01). In the third step, which included analyses with *Impaired Limits* EMS domain. In this model, only entitlement predicted ASPD ($\Delta R^2$ = 0.07; $R^2$=0.21, *P*<0.05). The latter two results also provided support for hypothesis three. Analyses

revealed that IQ scores did not contribute any significance to any of the models.

Table 4: Hierarchical multiple regression analysis with mentalizing, attachment style, disconnection/rejection domain EMS and IQ as the predictor variables and ASPD as the outcome variable

| Step | Predictor | *B (SE)* | *t* | *p* | $R^2$ | $\Delta R^2$ | Significant *F* change |
|---|---|---|---|---|---|---|---|
| 1 | Mentalizing | 0.04 (0.14) | 0.29 | 0.78 | 0.01 | | 0.78 |
| 2 | Mentalizing | 0.15 (0.14) | 1.10 | 0.28 | | | |
| | Anxious attachment | 2.16 (0.68) | 3.16 | 0.01 | 0.15 | | <0.01** |
| 3 | Mentalizing | 0.16 (0.13) | 1.18 | 0.24 | | | |
| | Anxious attachment | 1.68 (0.69) | 2.42 | 0.02 | | | |
| | Mistrust-Abuse | 0.31 (0.13) | 2.26 | 0.03 | 0.21 | 0.07 | 0.03* |
| 4 | Mentalizing | 0.14 (0.15) | 0.93 | 0.36 | | | |
| | Anxious attachment | 1.76 (0.74) | 2.37 | 0.02 | | | |
| | Mistrust-Abuse | 0.29 (0.14) | 2.05 | 0.04 | | | |
| | IQ | 0.02 (0.07) | 0.33 | 0.74 | 0.22 | | 0.74 |

*Note: *p <.05; **p <.01*

Table 5: Hierarchical multiple regression analysis with mentalizing, attachment style, impaired autonomy & performance domain EMS and IQ as the predictor variables and ASPD as the outcome variable

| Step | Predictor | *B (SE)* | *t* | *p* | $R^2$ | $\Delta R^2$ | Significant *F* change |
|---|---|---|---|---|---|---|---|
| 1 | Mentalizing | 0.05 (0.14) | 0.37 | 0.71 | 0.01 | | 0.71 |
| 2 | Mentalizing | 0.16 (0.14) | 1.13 | 0.26 | | | |
| | Anxious attachment | 2.09 (0.71) | 2.94 | 0.01 | 0.14 | | <0.01** |
| 3 | Mentalizing | 0.07 (0.14) | 0.49 | 0.63 | | | |
| | Anxious attachment | 0.16 (0.94) | 0.17 | 0.86 | | | |
| | Dependence | 0.47 (0.16) | 2.90 | 0.01 | 0.25 | 0.11 | <0.01** |
| 4 | Mentalizing | 0.03 (0.15) | 0.21 | 0.83 | | | |
| | Anxious attachment | 0.34 (0.99) | 0.34 | 0.73 | | | |
| | Dependence | 0.46 (0.17) | 2.77 | 0.01 | | | |
| | IQ | 0.41 (0.06) | 0.64 | 0.52 | 0.26 | | 0.52 |

*Note: *p <.05; **p <.01*

Table 6: Hierarchical multiple regression analysis with mentalizing, attachment style, impaired limits domain EMS and IQ as the predictor variables and ASPD as the outcome variable

| Step | Predictor | *B (SE)* | *t* | *p* | $R^2$ | $\Delta R^2$ | Significant *F* change |
|---|---|---|---|---|---|---|---|
| 1 | Mentalizing | 0.04 (0.14) | 0.29 | 0.78 | 0.01 | | 0.78 |
| 2 | Mentalizing | 0.15 (0.14) | 1.10 | 0.28 | | | |
| | Anxious attachment | 2.16 (0.68) | 3.16 | 0.01 | 0.15 | | <0.01** |
| 3 | Mentalizing | 0.13 (0.13) | 0.98 | 0.33 | | | |
| | Anxious attachment | 1.50 (0.72) | 2.08 | 0.04 | | | |
| | Entitlement | 0.31 (0.14) | 2.23 | 0.03 | 0.21 | 0.07 | 0.03* |
| 4 | Mentalizing | 0.08 (0.14) | 0.57 | 0.57 | | | |
| | Anxious attachment | 1.66 (0.75) | 2.21 | 0.03 | | | |
| | Entitlement | 0.31 (0.14) | 2.16 | 0.03 | | | |
| | IQ | 0.05 (0.06) | 0.82 | 0.41 | 0.22 | | 0.41 |

*Note: *p <.05; **p <.01*

No significant associations were found in hierarchical regression analyses models between ASPD and EMS domains relating to *Other-Directedness* and *Over Vigilance and Inhibition.*

## 3.4. DISCUSSION

ASPD is highly prevalent among young males who come into contact with the criminal justice system; however, the availability of effective psychotherapeutic interventions targeting psychological deficits in this population is in infancy. Previous research has found an association with mentalizing impairments; and there is also evidence to suggest that adverse attachment styles are a feature in those with the disorder. Furthermore, there is a rapidly growing research base implicating the role of EMS in relation to ASPD. The current study aimed to investigate the

relationship between mentalizing capability, attachment style, early maladaptive schemas and ASPD in a sample of incarcerated young offenders with the view to assess whether these particular constructs were associated with ASPD in this population.

The first hypothesis, which stated that deficits in mentalizing capability would be associated with ASPD within young offenders with ASPD features, was not supported. Therefore, the findings of this study are contrary to previous research (Newbury-Helps et al., 2016), which found that adult males with a history of offending behaviour exhibit greater impairments in mentalizing when compared to a non-offending control group. The study was very thorough in the assessment of mentalizing since it utilised a combination of three mentalizing measures capable of examining a broader degree of the construct, whereas the current study employed only a single measure (RMET), which has shown varied results with offender populations (Newbury-Helps et al., 2016). Furthermore, offenders (mean age 33.66; SD 10.9) were recruited from probation services, whereas the current study examined incarcerated young offenders (mean age 19.64; SD 1.3). The failure to find the theorised relationship between mentalizing and ASPD in the current study could potentially be attributable to the age of offenders, the detention status and use of a single measure, which may be less likely to accurately identify specific and subtle aspects of mentalizing (Dolan & Fullam, 2004). Therefore, using a combination of measures to assess different dimensions may be beneficial, since at present there is no single reliable and valid tool with which to measure mentalizing and it is a multi-dimensional construct.

Furthermore, the RMET was designed to assess Theory of Mind (ToM) based on emotional state by reading the eyes based on facial cues (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001). ToM can be considered conceptually similar to cognitive empathy since both concepts involve making inferences relating to another person's mental state (e.g., Lawrence et al., 2004). Research suggests that psychopathic individuals do not present with difficulty attributing mental states to others on the basis of information of only their eyes (Richell et al., 2003). In the absence of psychopathy assessment, it is difficult to determine whether the current sample included participants with pronounced psychopathic traits, however given the overlap and comorbidity between ASPD and psychopathy (Ogloff, 2006; Werner, Few, & Bucholz, 2015) and the high prevalence of ASPD within the population under study, this may offer one possible explanation. Furthermore, the RMET also taps into verbal IQ therefore vocabulary knowledge may have influenced performance as such, it is possible that that other cognitive processes may play a role in relation to performance differences on the measure (Peterson & Miller, 2012).

Whilst there is evidence that ASPD is dimensional and exists on a continuum (Marcus, Lilienfeld, Edens, & Poythress, 2006), with no specific cut-off between sub-syndromal and threshold, the inclusion of participants who had not met the criteria for ASPD (n=15; 18.8%) in the present study, may have also had an impact on the findings. Interestingly Newbury-Helps et al., (2016) reported a significant difference in IQ scores between offender and control groups, which supports the link between IQ and mentalizing capability found in the current study. It is also possible

that other factors such as small sample size, selection bias, choice of ASPD measure and response bias on the part of participants may have affected the findings.

The second hypothesis, based on previous research (e.g., Adshead, 2004), stated that young offenders with ASPD would present with adverse attachment styles, was supported since the current study found anxious attachment was associated with ASPD. Adult attachment insecurity, specifically anxious type, has been associated with hyper-vigilance to threat, greater levels of distress, hypersensitivity to rejection cues, worry about separation and abandonment in adulthood (Mikulincer & Shaver, 2003; Shaver & Mikulincer, 2007) and the tendency to respond with anger during conflict (Follingstad, Bradley, Helff, & Laughlin, 2002; Simpson, Rholes, & Phillips, 1996). As such, when experiencing perceived threat, anxiously attached individuals have difficulties regulating their emotions and consequently, this can lead to violence. Unsurprisingly, anxious insecurity can lead to disturbed relationships attributed partially to social cognition impairments which include maladaptive mental representations of self and others and vice versa (Beeney et al., 2015). People high in attachment anxiety struggle to forgive because they engage in rumination that is often fearful in nature (Burnette, Davis, Green, Worthington, & Bradfield, 2009). This finding therefore serves to confirm that young offenders with ASPD are more likely to have poor attachment styles.

The final hypothesis stated that greater severity in ASPD symptomatology would be associated with higher scores on EMS Domains of *Disconnection and Rejection, Impaired Autonomy and Impaired Limits*, was supported. *Disconnection and Rejection* is typically characterised by

intense fear of mistreatment and abandonment, which can result in high levels of anger and aggression as a means to cope with these feelings (Young et al., 2003). Whilst *Impaired Autonomy and Performance* relates to individuals who hold expectations of oneself and the environment which interferes with their ability to separate from others and function independently (Pellerone, Craparo, & Tornabuoni, 2016). The *Impaired Limits* domain is characterised by impulsivity, difficulties respecting the rights of others, cooperating or meeting long term goals (Young et al., 2003). The findings in the current study were consistent with EMS theoretical conceptualisations (Beck et al., 1990; Young et al., 2003) and previous studies (e.g., Ball & Cecero, 2001), which have associated ASPD and aggressive behaviour with these specific schema domains. Specifically, significant associations were found with EMS relating to *mistrust-abuse, dependence* and *entitlement.* The first, *mistrust-abuse* refers to a high level of mistrust of others; combined with feelings that others will intentionally abuse, cheat or humiliate them. This may lead to reactive feelings and behaviours that promote self-preservation (i.e. violence). EMS *Mistrust/Abuse* was also reported in another study (Özdel et al., 2015) examining antisocial men, however, within the *Disconnection and Rejection Domain* the study also reported significant findings for other EMS relating to *emotional deprivation, defectiveness* and *social isolation,* which was not found in the current study. *Dependence* emerged as a significant predictor of ASPD in young offenders. This relates to subjective feelings of helplessness and the need to require support from others. Research by Kachadourian et al. (2013) found that *dependence* EMS was associated with psychological and physical aggression perpetration in

males who assault their partners. Other studies (Murphy, Meyer, & O'Leary, 1994) found similar findings in men who also exhibit an increased level of interpersonal dependency when compared with non-violent men. Furthermore, men with ASPD may use violence to resolve conflict and to maintain power in relationships (Babcock, Jacobson, Gottman, & Yerington, 2000; Holtzworth-Munroe & Stuart, 1994). This therefore may also explain the endorsement of this particular EMS. Within the *Impaired Autonomy & Performance* Özdel et al. (2015) also reported significant EMS findings for *Vulnerability* and *Failure* in antisocial patients when compared to controls which was not found in the current study. Finally, *entitlement* relates to the view that one is special and more deserving than others, requiring special rights or privileges irrespective of the cost to others. This finding was supported by other studies, which confirmed that entitlement EMS is relevant for people with ASPD (Özdel et al., 2015), and those who commit violence (McKee, Roring, Winterowd, & Porras, 2012). This particular EMS is also attuned with the diagnostic criteria for ASPD. It is worth considering whether certain EMS can be considered a restatement of core development features of ASPD, given the links for example of mistrust/abuse in relation to childhood maltreatment, impaired limits to impulsivity and vulnerability to neglect/ maltreatment, difficulties often experienced in this population.

No significant findings were reported in EMS Domains relating to *Other-Directedness* and *Over Vigilance and Inhibition*. Overall, these findings highlight a pattern of endorsement of specific EMS domains associated with ASPD and violent behaviour.

### 3.4.1. Limitations

A number of limitations must be considered for the current study. First, as a consequence of the cross sectional nature of the study design, no causal inferences can be made, specifically in relation to direction of findings. Further studies are needed to support the current findings. There are also no comparisons with a normative control group and a further limitation relates to the sample size and the use of self-report measures, which reduces the reliability of the findings due to issues such as malingering and social desirability. Furthermore, offending data was based on self-report rather than official records such as the Police National Computer (PNC) record, which presents further limitations.

The focus of ASPD only in this study is a major limitation given the reported high comorbidity with other personality disorders such as BPD, in addition to other PD's within the Cluster B DSM-5 category (APA, 2013), within forensic populations.

The current study excluded young males who were in segregation at the time of recruitment. This potentially may have excluded offenders who presented with extreme violent and/or problematic behaviour, which is relevant for people with ASPD and may have contributed to the overall findings.

In relation to the attachment scale, the 'Depend' subscale had to be removed due to low Cronbach's alpha, therefore this particular attachment sub-type was excluded from analyses. Finally, in relation to the IQ measure, some participants did not provide this information for reasons stated above, thus resulting in a reduced overall number of participants (n=63) being included in subsequent analyses.

### 3.4.2. Conclusion

In summary, this study examined the relationship between ASPD and mentalizing capability, close and anxious attachment styles and EMS among incarcerated young offenders, where a high prevalence of ASPD was expected and subsequently confirmed in the current study. The findings demonstrate that, contrary to expectation, mentalizing capability did not predict ASPD. Despite this, the results demonstrate that anxious attachment style and EMS domains of *Disconnection & Rejection*: Mistrust/Abuse and *Impaired autonomy & performance*: Dependence and *Impaired Limits*: Entitlement was associated with ASPD. Inferential analyses confirmed that intellectual functioning did not have an effect on performance on any measures bar mentalization itself. Results also indicate that mentalizing capability is associated with higher IQ and lower attachment anxiety. These findings provide some support in relation to identifying specific treatment targets for this group of hard to reach young offenders.

### 3.4.3. Implications and Directions for Future Research

This study provides evidence to suggest that specific underlying psychological constructs (anxious attachment style and EMS relating to Mistrust/Abuse, Dependence and Entitlement) are associated with ASPD. Therefore these findings highlight specific treatment targets for young offenders with ASPD. Future research should employ a range of mentalizing measures capable of examining a broader degree of the construct. Furthermore, controls in offender studies where used, should

be matched for IQ. More research in this area is required using a young offender population.

# Chapter Four

## Case Study: Assessment and treatment of a young male with an Intellectual Disability and a diagnosis of Antisocial Personality Disorder

# Chapter Five

## A psychometric critique: the Revised Adult Attachment Scale (Collins, 1996)

**ABSTRACT**

**Aim / Objective.** The Revised Adult Attachment Scale (RAAS; Collins, 1996) is a measure used to examine the dimensions hypothesised to underlie adult attachment (Collins, 1996; Goldman & Anderson, 2007). The main aim of this chapter was to critically evaluate the psychometric properties of the RAAS. Following this, consideration was given to the utility of the RAAS, particularly within forensic populations. Thereafter, conclusions are drawn.

**Methods.** A review of the literature was undertaken, focussing on empirical research studies which have utilised the RAAS.

**Results.** The results indicated that the RAAS comprehensively measures the concept of attachment and there is evidence to indicate good reliability and validity. This suggests that the revisions undertaken by (Collins, 1996) were effective in improving the psychometric properties and the overall reliability of scores. Despite this, there is evidence to suggest potential bias of the tool towards specific populations.

**Conclusions.** The RAAS has been found a reliable and valid measure for use with undergraduate populations, general and clinical populations. Further research utilising the tool within forensic populations is needed in order to draw conclusions in relation to the reliability and validity of the tool within forensic settings.

**KEYWORDS:** Attachment, RAAS, reliability, validity, psychometric.

## 5.1. INTRODUCTION

Attachment is a profound and enduring biologically based emotional bond that connects one person to another, across time and space (Ainsworth, 1989; Bowlby, 1969). Attachment theory (Bowlby, 1969) has supported our understanding of the importance of relationships in the context of early childhood experiences. From infancy to adulthood, interpersonal relations are shaped through early attachment experiences. The theory of adult attachment styles has its origins in Bowlby's (1973) conceptualisation regarding an infants' emotional attachment to their primary caregiver. According to attachment theory, internal models of attachment remain moderately stable across the life span (Bowlby, 1973, 1980, 1982). Stability is maintained through the processing of information and eliciting of feedback, which serves to confirm internal models of self and others (Collins & Read, 1994; Main, Kaplan, & Cassidy, 1985). Dysfunctional close adult relationships derive from insecure working models, resulting from inconsistent parental responsiveness (anxious/ambivalent) or consistently unresponsive caregiving (avoidant) (Wekerle & Wolfe, 1998). As such, attachment representations may change in response to life experiences that disconfirm internal existing models (Scharfe & Bartholomew, 1994).

Studies have supported Bowlby's (1953) theory that the stability of attachment may be influenced by adverse life events such as experience of physical or sexual abuse, parental death or divorce, illness of parent and child, parental psychiatric disorder (Waters, Merrick, Treboux, Crowell, & Albersheim, 2000), foster care (Stovall & Dozier, 1998) and parental drug and alcohol abuse (Finzi, Cohen, Sapir, & Weizman, 2000).

Similarly, adverse family backgrounds such as experiences of trauma are common in the history of offenders and delinquents (Barrett, Katsiyannis, Zhang, & Zhang, 2014; Duke, Pettingell, McMorris, & Borowsky, 2010; Reavis, Looman, Franco, & Rojas, 2013). In dysfunctional families, intimidation and violence are modelled and reinforced as strategies for maintaining relationships and resolving relationship conflicts (Cicchetti & Howes, 1991). Levinson and Fonagy (2004) argue that attachment theory provides a model to explain the association between emotional deprivation in childhood and the development of offending behaviour. In their study, they found a higher number of dismissive attachment styles in a prison group, which they purport is consistent with Bowlby's view that offending behaviour is associated with abnormal and distinct attachment patterns. Research examining a group of mentally disordered offenders found that when compared to both personality-disordered participants and a normative control group, the mentally disordered offenders were significantly more likely to be insecure in their attachment style (Levinson & Fonagy, 2004). Attachment theory may therefore support the understanding of offending behaviour within forensic populations, thus the need for reliable and valid measures of attachment for use with this population.

## 5.2. MEASURING ATTACHMENT IN ADULTS

There are currently two main approaches used to measure attachment in adults: semi-structured interviews and self-report measures. Semi-structured interviews are designed to reveal information relating to past and present relationships. This information is used to

establish the respondent's internal working models (George, Kaplan, & Main, 1985). The method is based on utilising an adult equivalent of Ainsworth's (Ainsworth, Blehar, Waters, & Wall, 1978) *'Strange Situations'* paradigm in infancy to predict adult attachment patterns through the processing of attachment-related thoughts and memories (Schmidt, Strauss, & Braehler, 2002), which implies that attachment behaviour is activated within specific situations (Bowlby, 1973). The second approach is based on self-report measures (i.e. Brennan et al., 1998), the majority of which focus on examining adult attachment styles are questionnaires based on Hazan and Shaver's work (1987, 1994), in turn is adopted from Ainsworth's classification of secure, ambivalent, and avoidant attachment (Ainsworth et al., 1978). This approach is mainly concerned with personality and social psychology, based on the assumption that the individual is conscious of these processes and is able to describe them with reasonable accuracy (Schmidt et al., 2002).

According to Schmidt et al. (2002) there is a lack of consensus as to whether such dimensions of adult attachment are an actual reflection of the attachment styles in infancy (Birtchnell, 1997). There is an on-going debate amongst researchers regarding adult attachment styles and the advantages of a dimensional over a categorical approach (Crowell, Fraley, & Shaver, 1999; Fraley & Waller, 1998; Hazan & Shaver, 1994; Rutter, 1995; Stein, Jacobs, Ferguson, Allen, & Fonagy, 1998). Many researchers favour the use of dimensional scoring over categorical, since the measures related to the former have demonstrated greater accuracy and validity (Fraley & Roisman, 2014; Shi, Wampler, & Wampler, 2013; Brennan et al., 1998; Fraley & Waller, 1998). Furthermore, individual

traits are considered dimensional (Haslam, Holland & Kuppens, 2012) as such, there is research to support the use of a dimensional model when assessing patterns of adult attachment using self-report measures (Fraley & Waller, 1998), given that when comparing self-report and clinician-report measures, subtle variances have been found to occur in the conceptualisation of attachment patterns. This therefore may further account for problematic convergence of attachment patterns (Schmidt et al., 2002) since difference attachment dimensions are correlated, which can result in more complex attachment patterns.

## 5.3. AIMS/OBJECTIVE

The Revised Adult Attachment Scale (RAAS; Collins, 1996) was used in Chapter three of this thesis. It is considered an appropriate measure with which to examine attachment dimensions hypothesised to underlie adult attachment (Collins, 1996; Goldman & Anderson, 2007) and therefore was used to examine attachment styles in young offenders recruited in Chapter Three of this thesis. This decision was based on the reported reliability and validity of the measure, in addition to the ease of use and covenience, given the large sample size (n=79); pragmatic factors and feasibilty related to using semi-structured interview methods such as the Adult Attachment Interview (AAI; Frodi et al., 2001; Timmerman & Emmelkamp, 2006) which was not possible due to time constraints and regime restrictions within the recruiting establishment. The main aim of this chapter therefore, is to critically evaluate the psychometric properties of the RAAS. Following this, consideration will be

given to the utility of the RAAS, particularly within forensic populations. Thereafter, conclusions will be drawn.

## 5.4. OVERVIEW OF THE REVISED ADULT ATTACHMENT SCALE (RAAS: COLLINS, 1996)

Hazan and Shaver (1987) developed a self-report adult attachment questionnaire relevant to three types of infant-caregiver attachment styles (i.e., secure, anxious, and avoidant) previously identified from observational research by Ainsworth et al. (1978). In response to the psychometric limitations of Hazan and Shaver's (1987) three-attachment style measure, Collins and Read (1990) developed the Adult Attachment Scale (AAS), later revised by Collins (1996). The revision was undertaken in an attempt to correct several poorly worded items, with the aim to improve reliability of scores produced by the measure (Graham & Unterschute, 2015).

The RAAS is measure of relationship attachment designed to evaluate underlying attachment dimensions. It contains three dimensions: closeness, dependence and anxiety. Collins (1996), the Close scale relates to the extent to which an individual is comfortable with closeness and intimacy. The Depend scale relates to the extent to which an individual feels he/she can depend on others to be available when needed. Finally, the Anxiety scale relates to the extent to which an individual is concerned about being abandoned or unloved.

The tool is an 18-item self-report questionnaire, which contains three subscales with six items in each subscale. It requires participants to rate their *'feelings about close relationships'* using a 5-point Likert scale

from *'not at all characteristic'* (1) to *'very characteristic'* (5), yielding three scores: comfort with closeness (close), capacity to depend on others (depend) and fear of being abandoned (anxiety). A scoring protocol translates dimensional scores into four categories (secure, preoccupied, dismissing and fearful) based on relationships between subscales and categories. Certain statements are formulated in a negative direction in order to control for acquiescent responses. The scoring protocol allows the option of measuring attachment using a two dimensional approach, providing instructions on how to compute scores for attachment anxiety (model of self) and attachment avoidance (model of other). Eng, Heimberg, Hart, Schneier, and Liebowitz (2001) claim that the Revised Adult Attachment Scale (RAAS) is the only multi-item dimensional measure that can yield in adults the kind of attachment typology identified by Ainsworth et al. (1978). A description of the questions on the RAAS, which is available in the public domain is shown in table 1 below:

Table 1. Revised Adult Attachment Scale (RAAS; Collins, 1996)

| No. | Question |
|---|---|
| 1. | I find it relatively easy to get close to people. |
| 2. | I find it difficult to allow myself to depend on others. |
| 3. | I often worry that other people don't really love me. |
| 4. | I find that others are reluctant to get as close as I would like. |
| 5. | I am comfortable depending on others. |
| 6. | I don't worry about people getting too close to me. |
| 7. | I find that people are never there when you need them. |
| 8. | I am somewhat uncomfortable being close to others. |
| 9. | I often worry that other people won't want to stay with me. |

10. When I show my feelings for others, I'm afraid they will not feel the same about me.
11. I often wonder whether other people really care about me.
12. I am comfortable developing close relationships with others.
13. I am uncomfortable when anyone gets too emotionally close to me.
14. I know that people will be there when I need them.
15. I want to get close to people, but I worry about being hurt.
16. I find it difficult to trust others completely.
17. People often want me to be emotionally closer than I feel comfortable being.
18. I am not sure that I can always depend on people to be there when I need them.

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The measure takes on average 8-10 minutes to complete. There are no requirements in regards to training or scoring for assessors, instead however there are instructions for scoring, which are provided with the tool, in addition to brief details relating to the reliability and validity of the measure.

The measure is able to assess adult attachment conceptualised as attachment dimensions (Close, Depend and Anxiety), in addition to attachment categories (secure, preoccupied, dismissing, and fearful attachment styles). Standard instructions for using the Statistical Package for the Social Sciences (SPSS) commands are provided for each outcome.

The first, developed on Bartholomew's (1990) four attachment styles (secure, preoccupied, fearful, dismissing) is based on categorising scores on the three subsequent attachment dimensions (close, depend, anxiety). Collins (1996) notes that this method is at present exploratory and not recommended, however it is suggested that instead, attachment styles should be considered in terms of theoretically expected profiles along the dimensions, highlighting that for example, it is expected that a

secure individual should achieve high scores on the close and depend dimensions, and low scores on the anxiety dimension.

A ‘high’ score is considered above the midpoint on a 5-point scale, and a low score as below the midpoint. As a consequence of this scoring system, it is highlighted that those who score at the midpoint will be excluded from the sample. Collins (1996), however states that this method provides a more well defined assessment of attachment style given that individuals who appear to fall on the boundary of more than one style, or who do not clearly belong to any style are excluded. Therefore, it is acknowledged that this method of scoring may be problematic, given that important data points may be lost from analysis, since it is estimated that around 7% of participants may be lost though this procedure. As such, it is therefore recommended that this method be used in conjunction with continuous measures that include the entire sample. For computerised data analyses, Collins (1996) suggests that whilst researchers can choose to assign participants to attachment style categories, a more appropriate statistical procedure is to conduct regression analyses using the continuous attachment dimensions and then, if needed, the predicted values corresponding to each of the four attachment prototypes may be plotted.

### 5.4.1. Psychometric Properties of the RAAS

A ‘good’ psychological psychometric test should possess a high degree of reliability and validity, in addition to having appropriate norms (Kline, 2000). Normative data for the RAAS was collected using undergraduate U.S. university student samples (Collins, 1996). From

examining the literature, the RAAS has also been validated for use in the following populations, university students (Fernández & Dufey, 2015; Sirota, 2009) and clinical samples (Eng et al., 2001; Goldman & Anderson, 2007; Tait, Birchwood, & Trower, 2004) and adult females (Sirota, 2009). Findings are discussed below.

## 5.5. RELIABILITY

A psychometric tool is deemed to be reliable if it is able to measure a construct consistently, and accurately with minimal error. Cronbach's alpha coefficient is a method used to assess the reliability, or internal consistency of a psychometric tool (Cronbach, 1951). Acceptable reliability using alpha coefficient ranges is around .60 to .70, and a good indicator of reliability is .70 or above (Kline, 2000). Using the original Adult Attachment Scale (AAS), Collins and Read (1990) reported Cronbach's alpha coefficients of ($\alpha$ = .69) for Close, ($\alpha$ = .75) for Depend, and ($\alpha$ = .72) for Anxiety. Upon revising the measure, Collins (1996) reported an improvement in reliability scores after assessing three samples of U.S. undergraduate students, as shown in table 2 below:

Table 2. RAAS: Cronbach's alpha coefficient in undergraduate samples:

| n | Close | Depend | Anxiety |
|---|---|---|---|
| 173 | .81 | .78 | .85 |
| 130 | .80 | .78 | .85 |
| 100 | .82 | .80 | .83 |

More recently, researchers, Fernández and Dufey (2015) assessed reliability of the RAAS using 420 university students after translating the measure from Spanish to Chilean. The findings supported the internal consistency of two dimensions of attachment, Close (α = .68) and Anxiety (α = .85), however Depend was lower than expected (α = .62). A confirmatory factor analysis was conducted, however this demonstrated that two of the items in dependence dimension were considered problematic, given that the analysis failed to reach a convergent fit. Despite this, the measure revealed satisfactory Cronbach's alpha internal consistencies for the anxiety subscale, followed by close and depend subscales.

In another study examining attachment styles using the RAAS within a clinical population, it was reported Cronbach's alpha for Close (α = .84), Depend (α = .76), and Anxiety (α = .90) (Eng et al., 2001) revealing marginally stronger internal consistency, when compared to the previously reported undergraduate population. Similarly, a clinical study investigating attachment styles within psychotherapy patients reported Cronbach's alphas for Close (α = .81), Depend (α = .74), and Anxiety (α = .83), respectively (Goldman & Anderson, 2007). Again, a clinical study examining patients a diagnosis of schizophrenia reported the following Cronbach's coefficient for Close (α = .86), Depend (α = .86), and Anxiety (α = .97) (Tait et al., 2004). Whilst the above studies provide evidence of a good degree of reliability for the measure, interestingly, the highest validity scores derived from a sample of adult females with gay or bisexual fathers where Cronbach's alphas for subscales close, depend, and anxiety were 0.94, 0.91, and 0.93 respectively (Sirota, 2009). Despite

this, using a forensic population the results were less favourable. Corson, Vollm and Egan (unpublished) examined 79 young offenders and reported Cronbach's alpha for Close (α = .62), Depend (α = .47), and Anxiety (α = .84). It is worth noting that after running the analysis, further examination of the data indicated that removing item five on the Depend subscale slightly increased Cronbach's alpha score (α = .56), as recommended in order to achieve a higher score (Field, 2005). The results derived from the Depend subscale, could potentially be explained by the fact that the population under study was incarcerated and potentially felt isolated from close relationships.

A recent meta-analysis however, examining a total of 313,462 individuals derived from 564 studies explored reliability after examining five attachment measures including the RAAS (Graham & Unterschute, 2015). In relation to the RAAS, findings revealed Cronbach's alpha for Close (α = .77), Depend (α = .80), and Anxiety (α = .86), evidencing good reliability scores. It is noted that the average reliability of scores derived from the RAAS were moderate and notably improved over the original AAS across subscales, in particular on the Anxiety subscale (α = .86) which revealed a substantially larger correlation, given that it is only includes six questions. Since Cronbach's alpha takes into account item length and average inter item correlation, this suggests that the particular questions making up the RAAS Anxiety subscale are strongly inter-related. On average, the reliability of the RAAS scores was higher than that of the associated AAS scores. These findings confirm that the revisions undertaken by Collins (1996) were effective in improving the psychometric properties and overall reliability of scores of the measure.

In relation to limitations, Collins (1996) reported a limited number of studies were included in the analysis relating to the RAAS and although some of the correlations between RAAS reliabilities and sample characteristics were higher than those for AAS reliabilities, they failed to achieve statistical significance due to the decreased sample size. Interestingly, the RAAS subscales produced statistically significantly less reliable scores within non-U.S. than in U.S. samples. Despite this, the Close subscale produced more reliable scores in college student samples when compared to non-college student samples. Furthermore, the reliability of the Depend subscale scores was found to be lower in older individuals than in younger individuals. In relation to ethnicity, the Anxiety subscale was found to have produced more reliable scores in non-White than in White populations. Although sufficient data was not available to make broader conclusions, it was concluded that reliability of RAAS scores appeared consistently biased in favour of U.S. samples. As such, they suggested that caution should be taken when using the RAAS in non-U.S. samples and, in particular, when making cross-national comparisons (Graham & Unterschute, 2015).

### 5.5.1. Test-Retest

Test-retest reliability relates to the tools ability to re-produce consistent results at varied intervals when administered to a population. Nunnally (1978) suggests that a satisfactory test–retest coefficient of .70 is acceptable. In order for the results to be valid, Kline (1993b) recommends that samples should comprise of around 100 subjects and the testing between the two dates should be separated by at least a

three-month interval. According to Kirkpatrick and Hazan (1994), the original version of the AAS has shown a test–retest reliability of 70% over 4 years. Collins and Read (1990) reported a test-retest for a 2-month period using a sample of 101 U.S. undergraduate students as follows: (α = .68) for Close, (α = .71) for Depend, and (α = .52) for Anxiety. They accounted for the lower stability of the anxiety scores by attributing items on that particular factor to a specific attachment relationship when compared to the items on the Close and Depend scales. Overall, it was found that scores were fairly stable over a 2-month period. In another study Fernández and Dufey (2015) performed a test-retest analysis assessing reliability of the RAAS using a sub-sample of participants who completed the scale 60 days after initial application. They reported Cronbach's alpha for Close (α = .57), Anxiety (α = .71) and Depend (α = .74), revealing significant and high levels of temporal stability for all subscales. However, it was acknowledged that the test-retest sample size (n=30) was smaller in comparison to the total sample (i.e. 420 university students); therefore this presented a limitation in regards to the estimation of the temporal stability of the measure (Fernández & Dufey, 2015). It is worth noting that the above two studies both conducted the re-test one month short of the recommended three month interval suggested by Kline (1993b), potentially affecting the reliability of the results.

## 5.6. VALIDITY

The validity of a psychometric measure is established by the accuracy in relation to how well the tool is able to measure the construct

under study (Kerlinger, 1973). The RAAS was reported to have excellent validity properties (Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010). The most common types of validity applied to psychometric tests are Construct; Content; Concurrent and Predictive Validity. Each will be discussed below.

### 5.6.1. Construct Validity

Construct validity refers to how well a measure works as a construct, and is able to measure what it is intended to measure (Cronbach & Meehl, 1955). If a psychometric lacks construct validity, results obtained using the measure will be difficult to interpret (Westen & Rosenthal, 2003). Fernández and Dufey (2015) assessed construct validity of the RAAS. Their findings revealed a good degree of construct validity given that the Depend and Close subscales were positively associated with self-esteem, mate value and quality of relationships, and negatively correlated with hostility. In view of these findings, they suggest that and increase in self-worth is associated with security and comfort in social situations, positivity, efficiency and a high level of self-acceptance within their relationships, resulting in a better quality of relationships (Collins, Ford, Guichard, & Allard, 2006). Furthermore, the closer and more dependent, the less prone to hostility, which is reported to be characteristic of the accompanying lower levels of physical aggression for the Depend dimension (Collins et al., 2006).

### 5.6.2. Content Validity

Content validity refers to the extent or degree to which items on the tool adequately represents all aspects under consideration. Content validity was considered for the original Adult Attachment Scale (AAS) by Cicirelli (1995), who suggested that given that the items on the measure represent fundamental aspects of attachment, the AAS is considered to have content validity. There was no further information within the literature discussing content validity in relation to the RAAS, however since the tool is an improved and updated version of the AAS, it is therefore likely that the RAAS also possesses content validity.

### 5.6.3. Concurrent Validity

Concurrent validity refers to the degree to which the results of a particular measure correlate to another measure at the same point in time, which measures the same construct (Carmines & Zeller, 1979). There is no evidence that the RAAS has been assessed for concurrent reliability, however Domingo and Chambliss (1998) investigated the concurrent validity of the original Adult Attachment Scale (AAS) (Collins, 1996) and the Adolescent Relationship Questionnaire (ARQ) (Scharfe & Bartholomew, 1994) which is also a self-assessment measure of attachment. The AAS includes three subscales: Depend, Close, and Anxiety whilst the ARQ contains subscales of: Secure, Fearful, Preoccupied, and Dismissing. The researchers calculated inter-correlations among the seven subscales and found a high concurrent validity across several of the subscales. Scores on several subscales were significantly associated, generally in a direction with consistent with predictions.

Findings revealed a significant positive correlation between the AAS Close subscale and the ARQ Secure subscale, and there was a significant positive correlation between the AAS Depend subscale and the ARQ Secure subscale. A significant negative correlation was found between the AAS Anxiety and ARQ Secure subscale. Furthermore, a significant strong negative correlation was found between the ARQ Fearful subscale and the AAS Close and Depend subscales. The conclusion was that the AAS and the ARQ paralleled each other, thus suggesting a good degree of concurrent validity (Domingo & Chambliss, 1998). When generalising these findings to the RAAS, caution must be taken, given that the RAAS is a revision of the AAS. Despite this, the revisions undertaken within the RAAS have been shown to improve the measure, which may suggest that should the RAAS be assessed for concurrent validity against the ARQ, it is likely that a good degree of concurrent validity will be found, particularly given that the RAAS correlates at almost unity with the original version of the AAS ($r$=.98).

### 5.6.4. Predictive Validity

Predictive validity is concerned with the extent to which the tool is able to predict a future outcome (Schultz & Whitney, 2005). In their study examining adult attachment, working models, and relationship quality in dating, after using the original AAS, Collins and Read (1990) reported finding that the best predictor for establishing the quality of relationships between intimate partners was the extent to which the women were comfortable with closeness, however the best predictor for males was the degree to which their partner was anxious about being abandoned or

unloved. It was also found that the Anxiety dimension was the best predictor of relationship quality. These findings therefore provide some evidence of the predictive validity of the AAS. There is however, no further literature relating to predictive validity for the RAAS.

## 5.7. IMPLICATIONS FOR FORENSIC PRACTICE

As highlighted above, there is a growing evidence base to support the use of the RAAS within undergraduate, general and clinical settings. However, there is a paucity of research supporting the use of the tool within forensic settings. In one forensic study examining an incarcerated population of young offenders, the RAAS was found to have acceptable reliability within the Close subscale and good reliability within the Anxiety subscale, however the reliability scores for the Depend subscale were inadequate (Corson et al., unpublished), therefore it may be worth considering whether this issue is specific to the population or whether the closed conditions contributed to the poor Depend score. However, despite this the original version of the RAAS, the Adult Attachment Scale (AAS) has successfully been used with forensic populations (Bogaerts et al., 2005; Sigre-Leirós et al., 2015; Tasso et al., 2012).

Other forensic studies examining adult sexual and violent offenders have utilised a range of self-report and interview methods to evaluate attachment styles, for example; the Relationship Scale Questionnaire (Baker & Beech, 2004; Smallbone & Dadds, 1998; Ward, Hudson, & Marshall, 1996); Experience in Close Relationships (Lyn & Burton, 2004; Wood & Riggs, 2008, 2009), Attachment Style Questionnaire (Sawle & Kear-Colwell, 2001); the Adult Attachment Interview (Frodi et al., 2001;

Timmerman & Emmelkamp, 2006). It therefore appears that there is no specific attachment measure favoured by researchers examining attachment styles within forensic populations.

## 5.8. CONCLUSION

The main purpose of this chapter was to examine the psychometric properties of the Revised Adult Attachment Scale (RAAS; Collins, 1996) and to consider utility of the tool, particularly within forensic populations. The RAAS has been found a reliable and valid measure for use with undergraduate populations in addition to clinical and general populations, since it comprehensively measures the concept of attachment within these populations. Despite this, findings also revealed that the measure produced less reliable results when used with non-U.S. samples; and the reliability of the Depend subscale scores was found to be lower in older individuals and a forensic population, than in younger individuals. In relation to ethnicity, the Anxiety subscale was found to have produced more reliable scores in non-White than in White populations. Overall, these findings may suggest bias within specific populations.

In relation to forensic populations, given that many offenders report adverse childhood experiences which are likely to impact on offending behaviour and attachment experiences in adulthood, it is useful for clinicians and researchers to have access to appropriate reliable and valid adult attachment measures with which to support the identification of treatment needs within this population. Furthermore, reliability and validity is essential for any research, particularly since reliability of scores produced by a measure can guide researchers and clinicians when making

decisions about measurement selection (Graham & Unterschute, 2015) in relation to research and intervention.

In relation to self-report measures such as the RAAS, there are also issues associated with such tools, given that they are reliant on participants understanding the questions within them, in addition to providing truthful answers. This may be particularly problematic within forensic populations, particularly given that it is estimated that malingering within this population is around 17% (Rogers, Sewell, Morey, & Ulstad, 1996). Consequently, self-report attachment questionnaires have often been criticised, since it is reported that they can lead to highly erroneous inferences regarding important theoretical issues (Fraley, Waller, & Brennan, 2000). As such, it has been suggested that employing use of both self-reports and interviews would be more helpful in regards to identifying attachment dynamics (Bartholomew & Moretti, 2002). However, attachment interviews can be lengthy and time-consuming, and may not be conducive for conducting research examining forensic populations, so much as assessing treatment needs within such individuals. Therefore on balance, a good self-report measure is essential for research studies within this population examining adult attachment dimensions/styles. From the information reviewed, there is also no evidence to suggest that the RAAS has been validated for use in ID populations, which presents further limitations.

In summary, the RAAS has been found to be a reliable and valid measure for use with undergraduate populations in addition to clinical and general populations. However, further research utilising the tool within

forensic populations is needed in order to draw conclusions in relation to application of the tool within forensic settings.

# Chapter Six

## Thesis Discussion

## 6.1. SUMMARY OF CURRENT RESEARCH

This thesis aimed to provide an overview of topics relating to young offenders with ASPD. The work considered psychological constructs implicated in the development of ASPD in young offenders to identify treatment targets for psychotherapeutic interventions for this population.

Compared to other personality disorders, such as Borderline Personality Disorder (BPD), there is limited evidence focusing on identifying specific treatment targets for young males with ASPD. Furthermore, there is also limited support for specific treatment interventions. This thesis was therefore motivated to explore specific treatment targets for people with ASPD in addition to evaluating efficacy of one promising treatment intervention (Mentalization Based Therapy), which has been developed for people with BPD, but has also shown to be effective for people with ASPD (e.g. Bateman et al., 2016; McGauley, et al., 2011).

In the first instance, given the lack of research focusing on ASPD, the meta-analysis systematically reviewed the literature with the view to identify whether MBT is effective for people with BPD, the population who the treatment was originally designed (Chapter two). Thereafter, in accordance with research and theoretical underpinnings in relation to the development of ASPD, an exploration of predictors (mentalizing, attachment style and schema) of ASPD was undertaken in a sample of detained young men (Chapter three). Following this, a case study provided an in-depth illustration relating to a one-to-one intervention with

a young male with diagnoses of ASPD, ID, ADHD and Pyromania (Chapter four). Finally, a critical evaluation of a psychometric measure used to evaluate adult attachment styles (RAAS) was undertaken (Chapter five).

Considering each of these chapters in more detail; Chapter two systematically reviewed the literature with the aim to quantitatively evaluate the effectiveness of MBT, firstly to evaluate whether MBT treatment resulted in an improvement of BPD symptomology across a number of domains; and secondly, to examine the efficacy of MBT for adolescents when compared to adults. In accordance with PRISMA guidelines for meta-analysis processes and a strict inclusion criteria, only randomised control trials (RCTs) and controlled trials were included in the review resulting in the analysis of five primary articles. The primary outcome was symptoms, whilst secondary outcomes included anxiety, depression, impairment, suicidal attempts/self-harm and interpersonal functioning. In relation to the findings, effect sizes were based on five studies assessed at baseline and after 12 months of MBT treatment. MBT yielded significant and large treatment effect sizes for target problems. There were significant improvements in symptoms. As mentioned, two of the five studies providing outcome measures relating to symptoms were based on self-report and thus provide subjective experiences of symptoms patients attribute to BPD. However, the finding may suggest that MBT is effective in moderating BPD symptoms. Furthermore, effect sizes for other problems (anxiety, depression, suicidal attempts/self-harm) were found to be large to very large, however when considering interpersonal functioning, no effect favouring either treatment or control group was found. Regarding impairment, a large and significant effect size was found

in favour of the control group. Impairment measures were completed by therapists, which may explain the contradiction between symptoms and impairment outcomes. Overall adolescents derived greater benefit from the treatment when compared to adults, which may provide some evidence to justify early intervention for young people.

Chapter three, an empirical study investigated the relationship between mentalizing, attachment style and schema as predictors of ASPD in young offenders with the aim to identify specific treatment targets for psychotherapeutic interventions for this population. There is currently limited evidence relating to effective treatment outcomes for this population, therefore by identifying precise treatment targets would provide a greater understanding of specific psychological deficits within this population. Services therefore would be in a position to further optimise treatment programmes and/or justify the use of specific interventions for young offenders with ASPD. The results indicated that anxious attachment and the specific EMS domains *Disconnection & Rejection* (mistrust-abuse); *Impaired Autonomy & Performance* (dependence), and *Impaired Limits* (entitlement) contribute to predicting ASPD in young male offenders.

Chapter four, a single case study related to assessment and treatment of a young male diagnosis of ASPD, ID, ADHD and Pyromania using an offence focussed treatment programme (FIP-DID; Inett et al., 2013). The assessments and formulation identified that Patient X's treatment needs were across all assessed areas i.e. fire-interest/identification, offence supportive attitudes, communication and relationships and self-management/coping. Furthermore, difficulties with

attachment, sexual abuse, social disadvantage, emotional regulation issues and communication difficulties are likely to have had a negative impact on his self-esteem, self-regulation and social adjustment. His external locus of control and difficulties with emotional regulation and social communication may have acted to reinforce his firesetting behaviour. The results highlighted issues associated with working with young offenders with ASPD and comorbid diagnoses due to engagement problems and treatment disruption. Furthermore, the lack of reliable and valid measures for use with this population.

Chapter five investigated the reliability and validity of the Revised Adult Attachment Scale (RAAS; Collins, 1996), a measure used in Chapter three. The aim was to critically evaluate the tool as well as discuss implications for forensic practice. The results indicated that the RAAS has been found a reliable and valid measure for use with undergraduate, clinical and general populations, and comprehensively measures the concept of attachment within these populations.

Despite this, findings also revealed that the measure produced less reliable results when used with non-U.S. samples. Furthermore, the reliability of the Depend subscale scores was found to be lower in older individuals and a forensic population, than in younger individuals. In relation to ethnicity, the Anxiety subscale was found to have produced more reliable scores in non-White than in White populations. Overall, these findings may suggest bias within specific populations.

## 6.2. LIMITATIONS

In relation to Chapter two, the main limitation of the meta-analysis related to the small number of studies included in the analyses, particularly since only one study contributed to the adolescent data. In addition, outcome measures used in the studies included in analyses were mostly based on self-report. Furthermore, some of the main investigators of the reported trials were also involved in the development of MBT; therefore this may have decreased the objectivity of the particular research studies. When considering the findings, it is also worth noting that there was variability in relation to settings where the treatment was delivered, given that some studies used outpatient vs. partial hospitalization or day hospital settings, therefore this may have introduced confounders. Furthermore, one included study was a matched-control design, which lacks internal validity controls when compared to RCTs. In relation to treatment adherence, whilst reported, standardised measurable data in relation to this was not provided. It was not possible to assess the impact of publication bias or drop-out using funnel plots due to the small number of studies included in this review. Furthermore, there is a lack longer-term follow-up studies to confirm the continuation of treatment. Finally, no specific mentalizing measures were employed which may have indicated whether this specific key treatment domain (mentalizing capability) had been targeted or indeed may have mediated therapeutic gains.

In relation to Chapter three, a number of limitations must be considered in relation to this empirical study. A major limitation relates to the focus of ASPD only since the condition has a high comorbidity with other personality disorders such as BPD, in addition to other PD's within

Cluster B DSM-5 category (APA, 2013), particularly within forensic populations.

Furthermore, due to the cross sectional nature of the study design, no causal inferences can be made. It is therefore not possible to draw definite conclusions regarding the direction of findings. There are also no comparisons with a normative control group and a further limitation relates to the relatively small sample size, selection bias and the use of self-report measures. Furthermore, the study excluded young males who were in segregation at the time of recruitment. This potentially may have excluded offenders who presented with extreme violent and/or problematic behaviour, which is relevant for people with ASPD and may have contributed to the overall findings. In relation to the attachment scale, the 'Depend' subscale had to be removed due to low Cronbach's alpha, therefore this particular attachment sub-type was excluded from analyses. Finally, in relation to the IQ measure, some participants did not provide this information, thus resulting in a reduced overall number of participants being included in subsequent analyses.

Regarding Chapter four the case study, it is worth noting that due to treatment disruption, certain areas remain unexplored. Furthermore, although the case study related to a young male with ASPD which is relevant to this thesis, the case study did not explore mentalizing, attachment style and schemas, which underpins the main theme of this thesis.

Regarding Chapter five, further research utilising the Revised Adult Attachment Scale within forensic populations is needed in order to draw conclusions in relation to application of the tool within forensic settings.

## 6.3. IMPLICATIONS FOR PRACTICE

Given the findings within the meta-analysis along with the long term incremental post treatment gain shown in a follow-up study (Bateman & Fonagy, 2008) MBT should be considered an efficacious treatment option for people with BPD, as well as a treatment option for early intervention for young people with BPD traits. Researchers need to further investigate the applicability of the intervention for young people with ASPD. In view of this, it is worth mentioning ongoing randomised clinical trials of MBT for individuals with ASPD, Mentalization for Offending Adult Males (MOAM), which began early 2016, are currently being carried in the UK over a five-year period which will undoubtedly provide further much needed evidence in relation to the application of MBT for men with ASPD.

Whilst not fully explored in the current thesis, it is worth acknowledging the co-existence of ASPD and psychopathy. Research has shown that MBT is a suitable treatment modality for people with ASPD, however Bateman and Fonagy (2008) have highlighted those with psychopathy who possess callous and unemotional traits *"may not fully acquire the ability to mentalize and thus inhibit their natural violence"* (p185); therefore it is unclear whether the treatment is suitable for those with comorbid psychopathy (Van den Berg & Oei, 2009). However, there is also growing evidence to suggest that deficits in cognitive control are associated with psychopathy and ASPD (Zeier, Baskin-Sommers, Newman & Racer, 2012); and thus another promising intervention referred to Cognitive Remediation Therapy (CRT) (Delahunty, Reeder, Wykes, Morice, & Newton, 2002) has shown to be effective in relation to targeting key

impairments in antisocial subtypes with and without psychopathy (Baskin-Sommers, Curtin, & Newman, 2015).

Chapter three highlights that the empirical study provides evidence to suggest that specific underlying psychological constructs (anxious attachment style and schema relating to mistrust/abuse, dependence and entitlement) are associated with ASPD. Therefore these findings highlight specific treatment targets relevant to young offenders with ASPD.

For Chapter four, the case study highlights some of the difficulties related to working with young offenders with ASPD and other co-morbid conditions. Specifically, the difficulties in relation to treatment engagement, which could have been potentially influenced by the patient's disclosure of sexual abuse in childhood. This case study also reflects the role of adverse attachment experiences and the potential link in relation to a diagnosis of ASPD and offending behaviour.

Chapter five highlights the growing evidence base to support the use of the RAAS within undergraduate, clinical and general populations. However, it acknowledges that there is a paucity of research supporting the use of the tool within forensic settings. Furthermore, in relation to use with forensic samples, the 'depend' subscale revealed poor internal reliability (Chapter 3) and as such had to be removed from analysis. It is worth considering whether this may have been due to the fact that participants were held within closed conditions. Further research testing this measure with people with ASPD outside of closed conditions may provide a comparison. There is no evidence that the measure has been validated for use with ID populations

## 6.4. SUGGESTIONS FOR FUTURE RESEARCH

For Chapter two, to advance the current literature more research using RCTs with larger sample sizes is needed examining the efficacy of MBT, both within adult and adolescent populations, specifically independent research conducted outside of the development of the programme. Furthermore, given that MBT has been shown to be applicable for ASPD, further research is needed in this area.

Chapter three, future research should employ a range of mentalizing measures capable of examining a broader degree of the construct. Furthermore, controls in offender studies where used, should be matched for IQ. More research in this area is required using a young offender population.

In relation to Chapter five, further research investigating the reliability and validity for use with forensic and ID populations is needed.

## 6.5. CONCLUSIONS AND RECOMMENDATIONS

The meta-analysis conducted within this thesis provides evidence in relation to the efficacy of MBT. Furthermore, since adolescents experienced greater treatment gains, the findings may justify early intervention for this population.

The empirical study demonstrated that, contrary to prediction, mentalizing capability did not predict ASPD. Despite this, the results demonstrate that anxious attachment style and EMS domains of *Disconnection & Rejection*: Mistrust/Abuse and *Impaired autonomy & performance*: Dependence and *Impaired Limits*: Entitlement were predictive of ASPD. Inferential analyses confirmed that intellectual IQ did

not have an effect on performance on any measures; however mentalizing capability is associated with higher IQ and lower attachment anxiety. These findings provide some support in relation to identifying specific treatment targets for psychotherapeutic interventions for this group of hard to reach young offenders.

The single case study highlighted some of the difficulties in relation to working with a young male with an ID and ASPD and other comorbid diagnoses. It is worth noting that due to treatment disruption, certain areas were unexplored. It was recommended therefore, that Patient X complete the adapted FIP-DID programme and that further work is undertaken in the area of trauma given his disclosure of sexual abuse, if necessary. Consideration should also be given to the length of the intervention and where possible, given Patient X's diagnoses of ID and ADHD, as it may be more effective to deliver a shorter intervention which may be more tolerable for him.

The critique of the psychometric properties of the Revised Adult Attachment Scale (RAAS; Collins, 1996) found that overall, the tool is a reliable and valid measure for use with undergraduate, clinical and general populations. However, further research utilising the measure within forensic populations is needed in order to draw conclusions in relation to application of the tool within forensic settings. This research is a priority, since many males with a forensic history have had adverse attachment experiences and specifically since we have learnt from the empirical study that the measure warrants further exploration in relation to applicability to forensic populations.

In conclusion, this thesis set out to achieve a number of aims related to exploring underlying psychological constructs relevant to young young men with ASPD. Whilst there are clear limitations and potential obstacles to improving service provision for this group of young people, there is a great need to advance research in this area, which hopefully this thesis has contributed towards.

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# APPENDICES

## Appendix A

Systematic Review Search Syntax

| Cochrane Central Register of Controlled Trials | | |
|---|---|---|
| #1 | mentali?* | 89 |
| #2 | mentali?* based treatment | 38 |
| #3 | mentali?* based therap* | 37 |
| #4 | MBT | 103 |
| #5 | Borderline Personality Disorder | 605 |
| #6 | BPD | 815 |
| #7 | Borderline | 3423 |
| #8 | Randomi?* Control Trial | 187166 |
| #9 | RCT | 231329 |
| #10 | Control Trial | 218243 |
| #11 | Control | 257747 |
| #12 | Trial | 677720 |
| #13 | Match* | 29057 |
| #14 | (#1 or #2 or #3 or #4) and (#5 or #6 or #7) and (#8 or #9 or #10 or #11 or #12 or #13) | 26 |

| Campbell Collaboration | | In |
|---|---|---|
| mentali?* OR mentali?* based treatment OR mentali?* based therap* OR MBT | | All text |
| AND | Borderline Personality Disorder OR BPD OR Borderline | All text |
| AND | Randomi?* Control Trial OR RCT OR Control Trial OR Control OR Trial OR Match* | All text |
| | Total Hits | 154 |

| PsychInfo (1806 to June Week 2, 2016) | | Hits |
|---|---|---|
| #1 | mentali?*.mp.[mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] | 5716 |
| #2 | mentali?* based treatment.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] | 154 |
| #3 | mentali?* based therap*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] | 94 |
| #4 | MBT.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] | 167 |
| #5 | Borderline Personality Disorder.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] | 8453 |
| #6 | BPD.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & | 4543 |

| | | |
|---|---|---|
| | measures] | |
| #7 | Borderline.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] | 18213 |
| #8 | Randomi?* Control Trial.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] | 886 |
| #9 | RCT.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] | 2767 |
| #10 | Control Trial.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] | 1038 |
| #11 | Control.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] | 385458 |
| #12 | Trial.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] | 83574 |
| #13 | Match*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] | 108343 |
| #14 | mentali?*.mp. | 5716 |
| #15 | Borderline Personality Disorder/ | 4981 |
| #16 | Randomized Controlled Trials as Topic/ | 0 |
| #17 | 1 or 2 or 3 or 14 | 5779 |
| #18 | 5 or 6 or 7 or 15 | 19042 |

| | | |
|---|---|---|
| #19 | 8 or 9 or 10 or 11 or 12 or 13 or 16 | 531007 |
| #20 | 17 and 18 and 19 | 58 |

| Medline (1946 to June Week 1, 2016) | | Hits |
|---|---|---|
| #1 | mentali?* .mp.[mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept work, unique identifier] | 2468 |
| #2 | mentali?* based treatment.mp. [mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept work, unique identifier] | 47 |
| #3 | mentali?* based therap*.mp. [mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept work, unique identifier] | 19 |
| #4 | MBT.mp. [mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept work, unique identifier] | 1494 |
| #5 | Borderline Personality Disorder.mp. [mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept work, unique | 6314 |

| | | |
|---|---|---|
| | identifier] | |
| #6 | BPD.mp. [mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept work, unique identifier] | 6206 |
| #7 | Borderline.mp. [mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept work, unique identifier] | 33129 |
| #8 | Randomi?* Control Trial.mp. [mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept work, unique identifier] | 2193 |
| #9 | RCT.mp. [mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept work, unique identifier] | 10323 |
| #10 | Control Trial.mp. [mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept work, unique identifier] | 3216 |
| #11 | Control.mp. [mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary | 2089586 |

| | | |
|---|---|---|
| | concept work, unique identifier] | |
| #12 | Trial.mp. [mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept work, unique identifier] | 921348 |
| #13 | Match*.mp. [mp=title, abstract, original title, name of substance work, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept work, unique identifier] | 325390 |
| #14 | mentali?*.mp. | 2468 |
| #15 | Borderline Personality Disorder/ | 5653 |
| #16 | Randomized Controlled Trials as Topic/ | 104554 |
| #17 | 1 or 2 or 3 or 14 | 3936 |
| #18 | 5 or 6 or 7 or 15 | 37203 |
| #19 | 8 or 9 or 10 or 11 or 12 or 13 or 16 | 3069885 |
| #20 | 17 and 18 and 19 | 42 |

| EMBASE (1974 to 2016, Week 23) | | Hits |
|---|---|---|
| #1 | mentali?* .mp.[mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 3914 |

| | | |
|---|---|---|
| #2 | mentali?* based treatment.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 98 |
| #3 | mentali?* based therap*.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 48 |
| #4 | MBT.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 2163 |
| #5 | Borderline Personality Disorder.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 6086 |
| #6 | BPD.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 9617 |
| #7 | Borderline.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 52210 |
| #8 | Randomi?* Control Trial.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 4452 |
| #9 | RCT.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 21433 |

| | | |
|---|---|---|
| #10 | Control Trial.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 5970 |
| #11 | Control.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 2987332 |
| #12 | Trial.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 1506448 |
| #13 | Match*.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] | 472907 |
| #14 | mentali?*.mp. | 3914 |
| #15 | Borderline Personality Disorder/ | 5623 |
| #16 | Randomized Controlled Trials as Topic/ | 28162 |
| #17 | 1 or 2 or 3 or 14 | 6012 |
| #18 | 5 or 6 or 7 or 15 | 58867 |
| #19 | 8 or 9 or 10 or 11 or 12 or 13 or 16 | 4512046 |
| #20 | 17 and 18 and 19 | 82 |

**Appendix B**

Inclusion/Exclusion Form

First author, date, country:

| Inclusion criteria | Criterion met? | Comment |
|---|---|---|
| Study design:<br>Is the study a randomised or controlled trial? | Yes<br><br>Unclear<br><br>Discuss<br><br>No | |
| Population:<br>Studies were included if participants fell into one of two groups (i) adolescents aged 12-17 years with symptoms of emerging personality disorder who had presented to mental health services with a confirmed episode of self-harm within the month prior to recruitment (ii) adults aged 18 and over with a formal diagnosis based on the criteria of diagnostic systems such as the DSM or ICD. | Yes<br><br>Unclear<br><br>Discuss<br><br>No | |
| Outcomes:<br>Does the study include measures of anxiety, depression, impairment, suicidal attempts/self-harm and interpersonal functioning? | Yes<br><br>Unclear<br><br>Discuss<br><br>No | |
| Intervention:<br>Does the intervention include a 12-18 month MBT treatment programme delivered by qualified professionals. | Yes<br><br>Unclear<br><br>Discuss<br><br>No | |

If all questions answered with yes, include study.

## Appendix C

Data extraction table

| Trial | Symptoms | | Anxiety | | Depression | |
|---|---|---|---|---|---|---|
| | Treatment | Control | Treatment | Control | Treatment | Control |
| 1. Bateman (2009) | 1.12-1.97 (0.69) | 1.55-2.02 (0.6) | | | 14.8-29.83 (10.09) | 18.68-29.11 (8.81) |
| 2. Jørgensen (2013) | 1.2-1.7 (0.6) | 1.4-2 (0.6) | 13.5-18.6 (9.0) | 15.6-23.7 (11.2) | 18.8-31.5 (10.7) | 22.8-37.5 (10.6) |
| 3. Bateman (1999) | 2.1-2.5 (0.58) | 2.4-2.3 (0.71) | 52.5-68.4 (7) | 65.5-63.2 (6.8) | 20.6-36 (7.6) | 35.2-34.9 (7.4) |
| 4. Rossouw (2012) | 0.33-0.75 (0.07) | 0.58-0.7 (0.07) | 24.21—24.45 (0.89) | 25.03-24.93 (0.84) | 9.26-17.46 (0.84) | 11.54-16.23 (0.74) |
| 5.Bales (2015) | 1.04-1.78 (0.73) | 1.21-1.46 (0.73) | | | | |

| Trial | Impairment | | Suicidal attempts/Self-Harm | | Interpersonal Functioning | |
|---|---|---|---|---|---|---|
| | Treatment | Control | Treatment | Control | Treatment | Control |
| 1. Bateman (2009) | 60.9-41 (8.4) | 53.2-41 (8.4) | 0.38—4.11 (4.90) | 1.66-3.75 (3.69) | 1.28-2.01 (0.54) | 1.65-2.04 (0.47) |
| 2. Jørgensen (2013) | 58.5-43 (2.8) | 54-43.1 (3.8) | | | | |
| 3. Bateman (1999) | | | | | | |
| 4. Rossouw (2012) | | | 1.33-3.12 (0.09) | 2.01-3.08 (0.10) | | |
| 5.Bales (2015) | | | | | 34.08-26.14 (7.38) | 31.62-28.94 (7.38) |

**Appendix D**

The Cochrane Collaboration's tool for evaluating risk of bias

| Domain | Support for judgment | Review authors' judgment |
|---|---|---|
| *Selection bias.* | | |
| Random sequence generation. | Describe the method used to generate the allocation sequence in sufficient detail to allow an assessment of whether it should produce comparable groups. | Selection bias (biased allocation to interventions) due to inadequate generation of a randomised sequence. |
| Allocation concealment. | Describe the method used to conceal the allocation sequence in sufficient detail to determine whether intervention allocations could have been foreseen in advance of, or during, enrolment. | Selection bias (biased allocation to interventions) due to inadequate concealment of allocations prior to assignment. |
| *Performance bias.* | | |
| Blinding of participants and personnel *Assessments should be made for each main outcome (or class of outcomes).* | Describe all measures used, if any, to blind study participants and personnel from knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective. | Performance bias due to knowledge of the allocated interventions by participants and personnel during the study. |
| *Detection bias.* | | |
| Blinding of outcome assessment *Assessments should be made for each main outcome (or class of outcomes)*. | Describe all measures used, if any, to blind outcome assessors from knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective. | Detection bias due to knowledge of the allocated interventions by outcome assessors. |

| | | |
|---|---|---|
| *Attrition bias.* | | |
| Incomplete outcome data *Assessments should be made for each main outcome (or class of outcomes).* | Describe the completeness of outcome data for each main outcome, including attrition and exclusions from the analysis. State whether attrition and exclusions were reported, the numbers in each intervention group (compared with total randomized participants), reasons for attrition/exclusions where reported, and any re-inclusions in analyses performed by the review authors. | Attrition bias due to amount, nature or handling of incomplete outcome data. |
| *Reporting bias.* | | |
| Selective reporting. | State how the possibility of selective outcome reporting was examined by the review authors, and what was found. | Reporting bias due to selective outcome reporting. |
| *Other bias.* | | |
| Other sources of bias. | State any important concerns about bias not addressed in the other domains in the tool. If particular questions/entries were pre-specified in the review's protocol, responses should be provided for each question/entry. | Bias due to problems not covered elsewhere in the table. |

Possible approach for *summary assessments* of the risk of bias for each important outcome (across domains) within and across studies

| Risk of bias | Interpretation | Within a study | Across studies |
|---|---|---|---|
| Low risk of bias. | Plausible bias unlikely to seriously alter the results. | Low risk of bias for all key domains. | Most information is from studies at low risk of bias. |

| | | | |
|---|---|---|---|
| Unclear risk of bias. | Plausible bias that raises some doubt about the results. | Unclear risk of bias for one or more key domains. | Most information is from studies at low or unclear risk of bias. |
| High risk of bias. | Plausible bias that seriously weakens confidence in the results. | High risk of bias for one or more key domains. | The proportion of information from studies at high risk of bias is sufficient to affect the interpretation of results. |

Criteria for judging risk of bias in the 'Risk of bias' assessment tool

| RANDOM SEQUENCE GENERATION<br>Selection bias (biased allocation to interventions) due to inadequate generation of a randomised sequence. | |
|---|---|
| Criteria for a judgement of 'Low risk' of bias. | The investigators describe a random component in the sequence generation process such as:<br>• Referring to a random number table; Using a computer random number generator;<br>• Coin tossing;<br>• Shuffling cards or envelopes;<br>• Throwing dice;<br>• Drawing of lots;<br>• Minimization*.<br>*Minimization may be implemented without a random element, and this is considered to be equivalent to being random. |
| Criteria for the judgement of 'High risk' of bias. | The investigators describe a non-random component in the sequence generation process. Usually, the description would involve some systematic, non-random approach, for example:<br>• Sequence generated by odd or even date of birth;<br>• Sequence generated by some rule based on date (or day) of admission;<br>• Sequence generated by some rule based on hospital or clinic record number.<br><br>Other non-random approaches happen much less frequently than the systematic approaches mentioned above and tend to be obvious. They usually involve judgement or some method of non-random categorization of participants, for example:<br>• Allocation by judgement of the clinician;<br>• Allocation by preference of the participant;<br>• Allocation based on the results of a |

| | |
|---|---|
| | laboratory test or a series of tests;<br>• Allocation by availability of the intervention. |
| Criteria for the judgement of 'Unclear risk' of bias. | Insufficient information about the sequence generation process to permit judgement of 'Low risk' or 'High risk'. |
| ALLOCATION CONCEALMENT<br>Selection bias (biased allocation to interventions) due to inadequate concealment of allocations prior to assignment. | |
| Criteria for a judgement of 'Low risk' of bias. | Participants and investigators enrolling participants could not foresee assignment because one of the following, or an equivalent method, was used to conceal allocation:<br>• Central allocation (including telephone, web-based and pharmacy-controlled randomization);<br>• Sequentially numbered drug containers of identical appearance;<br>• Sequentially numbered, opaque, sealed envelopes. |
| Criteria for the judgement of 'High risk' of bias. | Participants or investigators enrolling participants could possibly foresee assignments and thus introduce selection bias, such as allocation based on:<br>• Using an open random allocation schedule (e.g. a list of random numbers);<br>• Assignment envelopes were used without appropriate safeguards (e.g. if envelopes were unsealed or non-opaque or not sequentially numbered);<br>• Alternation or rotation;<br>• Date of birth;<br>• Case record number;<br>• Any other explicitly unconcealed procedure. |
| Criteria for the judgement of 'Unclear risk' of bias. | Insufficient information to permit judgement of 'Low risk' or 'High risk'. This is usually the case if the method of concealment is not described or not described in sufficient detail to allow a definite judgement – for example if the use of assignment envelopes is described, but it remains unclear whether envelopes were sequentially numbered, opaque and sealed. |

| BLINDING OF PARTICIPANTS AND PERSONNEL<br>Performance bias due to knowledge of the allocated interventions by participants and personnel during the study. | |
|---|---|
| Criteria for a judgement of 'Low risk' of bias. | Any one of the following:<br>• No blinding or incomplete blinding, but the review authors judge that the outcome is not likely to be influenced by lack of blinding;<br>• Blinding of participants and key study personnel ensured, and unlikely that the blinding could have been broken. |
| Criteria for the judgement of 'High risk' of bias. | Any one of the following:<br>• No blinding or incomplete blinding, and the outcome is likely to be influenced by lack of blinding;<br>• Blinding of key study participants and personnel attempted, but likely that the blinding could have been broken, and the outcome is likely to be influenced by lack of blinding. |
| Criteria for the judgement of 'Unclear risk' of bias. | Any one of the following:<br>• Insufficient information to permit judgement of 'Low risk' or 'High risk';<br>• The study did not address this outcome. |
| BLINDING OF OUTCOME ASSESSMENT<br>Detection bias due to knowledge of the allocated interventions by outcome assessors. | |
| Criteria for a judgement of 'Low risk' of bias. | Any one of the following:<br>• No blinding of outcome assessment, but the review authors judge that the outcome measurement is not likely to be influenced by lack of blinding;<br>• Blinding of outcome assessment ensured, and unlikely that the blinding could have been broken. |
| Criteria for the judgement of 'High risk' of bias. | Any one of the following:<br>• No blinding of outcome assessment, and the outcome measurement is likely to be influenced by lack of blinding;<br>• Blinding of outcome assessment, but likely that the blinding could have been broken, and the outcome measurement is likely to be influenced by lack of blinding. |
| Criteria for the judgement of 'Unclear risk' of bias. | Any one of the following:<br>• Insufficient information to permit judgement of 'Low risk' or 'High risk';<br>• The study did not address this outcome. |

| INCOMPLETE OUTCOME DATA<br>Attrition bias due to amount, nature or handling of incomplete outcome data. | |
|---|---|
| Criteria for a judgement of 'Low risk' of bias. | Any one of the following:<br>• No missing outcome data;<br>• Reasons for missing outcome data unlikely to be related to true outcome (for survival data, censoring unlikely to be introducing bias);<br>• Missing outcome data balanced in numbers across intervention groups, with similar reasons for missing data across groups;<br>• For dichotomous outcome data, the proportion of missing outcomes compared with observed event risk not enough to have a clinically relevant impact on the intervention effect estimate;<br>• For continuous outcome data, plausible effect size (difference in means or standardized difference in means) among missing outcomes not enough to have a clinically relevant impact on observed effect size;<br>• Missing data have been imputed using appropriate methods. |
| Criteria for the judgement of 'High risk' of bias. | Any one of the following:<br>• Reason for missing outcome data likely to be related to true outcome, with either imbalance in numbers or reasons for missing data across intervention groups;<br>• For dichotomous outcome data, the proportion of missing outcomes compared with observed event risk enough to induce clinically relevant bias in intervention effect estimate;<br>• For continuous outcome data, plausible effect size (difference in means or standardized difference in means) among missing outcomes enough to induce clinically relevant bias in observed effect size;<br>• 'As-treated' analysis done with substantial departure of the intervention received from that assigned at randomization;<br>Potentially inappropriate application of simple imputation. |

| | |
|---|---|
| Criteria for the judgement of 'Unclear risk' of bias. | Any one of the following:<br>• Insufficient reporting of attrition/exclusions to permit judgement of 'Low risk' or 'High risk' (e.g. number randomized not stated, no reasons for missing data provided);<br>• The study did not address this outcome. |

| SELECTIVE REPORTING<br>Reporting bias due to selective outcome reporting. | |
|---|---|
| Criteria for a judgement of 'Low risk' of bias. | Any of the following:<br>• The study protocol is available and all of the study's pre-specified (primary and secondary) outcomes that are of interest in the review have been reported in the pre-specified way;<br>• The study protocol is not available but it is clear that the published reports include all expected outcomes, including those that were pre-specified (convincing text of this nature may be uncommon). |
| Criteria for the judgement of 'High risk' of bias. | Any one of the following:<br>• Not all of the study's pre-specified primary outcomes have been reported;<br>• One or more primary outcomes is reported using measurements, analysis methods or subsets of the data (e.g. subscales) that were not pre-specified;<br>• One or more reported primary outcomes were not pre-specified (unless clear justification for their reporting is provided, such as an unexpected adverse effect);<br>• One or more outcomes of interest in the review are reported incompletely so that they cannot be entered in a meta-analysis;<br>• The study report fails to include results for a key outcome that would be expected to have been reported for such a study. |
| Criteria for the judgementof 'Uncle ar risk' of bias. | Insufficient information to permit judgement of 'Low risk' or 'High risk'. It is likely that the majority of studies will fall into this category. |
| OTHER BIAS: due to problems not covered elsewhere in the table. | |
| Criteria for a judgement of 'Low risk' of bias. | The study appears to be free of other sources of bias. |
| Criteria for the judgement of 'High risk' of bias. | There is at least one important risk of bias. For example, the study:<br>• Had a potential source of bias related to the specific study design used; or<br>• Has been claimed to have been fraudulent; or<br>• Had some other problem. |

| | |
|---|---|
| Criteria for the judgement of 'Unclear risk' of bias. | There may be a risk of bias, but there is either:<br>• Insufficient information to assess whether an important risk of bias exists; or<br>• Insufficient rationale or evidence that an identified problem will introduce bias. |

## Appendix E

Excluded studies

| Study | Reasons for exclusion |
|---|---|
| Bateman and Fonagy (2008) | Follow-up study: This study assessed the effect of MBT partial hospitalization against TAU for BPD eight years after entry into a RCT and five years after all MBT was complete. |
| Bateman and Fonagy (2013) | This study employed secondary data from an RCT with the aim to establish whether specialised treatments are indicated for patients with clinically severe disorder. |
| Gullestad, Johansen, Høglend, Karterud & Wilberg (2013) | This study aimed to examine whether the pre-treatment level of mentalization, operationalized as Reflective Functioning (RF), was associated with differential responses to two different treatment modalities and might predict clinical improvement. The study utilised data from a RCT. |
| Taubner, Kessler, Buchheim, Kahele, & Staun (2011) | Not an RCT or controlled trial |

**Appendix F (CHANGE TO DSM 4)**

Box 69–1. DSM-5 Diagnostic Criteria for Antisocial Personality Disorder

301.7 (F60.2)

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

B. The individual is at least age 18 years.

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

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

**Appendix G:** List of early maladaptive schemas

| Early Maladaptive Schema | Description |
|---|---|
| **Disconnection & rejection** | **Belief that one's needs for safety, stability, security, empathy, respect and acceptance will not be met.** |
| Emotional Deprivation | A belief and expectation that other people will be unable to meet one's emotional needs. |
| Abandonment | The belief that close, loved others will be lost emotionally and physically. |
| Mistrust/Abuse | The belief that other people will harm, abuse, or take advantage of you in some way. |
| Social Isolation | A belief that one different from other people and not a part of any group/community. |
| Defectiveness | A belief one is unlovable/insignificant due to being bad, inferior, or invalid. |
| **Impaired autonomy & performance** | **Beliefs that interfere with one's ability to survive, separate, perform successfully, and function independent of other people** |
| Failure | A belief that one has failed in important areas of life or will eventually fail. |
| Dependence | A belief that one is unable to handle everyday responsibilities without the help of others. |
| Vulnerability | A belief that bad things will happen and one cannot do anything to prevent it or cope with it. |
| Enmeshment | A belief that one cannot be happy or survive without being constantly supported by close others. |
| **Impaired Limits** | **Inability to form long-term goals and a lack of responsibility to others; difficulty respecting and cooperating with others.** |
| Entitlement | A belief that one is entitled to special rights and is better that other people. |
| Insufficient Self-Control | Difficulty refraining from engaging in impulsive behavior and thinking of long-term consequences. |
| **Other-Directedness** | **Excessive focus on the needs, feelings, and desires of other people.** |
| Subjugation | A belief that one is controlled by other and that one's own feelings/opinions is not important or valid. |
| Self-Sacrifice | A belief that one must voluntarily meet the needs of other people. |
| Approval- Seeking | A belief that one's sense of self is dependent on other people liking you. |
| **Over vigilance & Inhibition** | **Focus on suppressing one's feelings and impulses; high standards of performance and ethical behavior.** |
| Emotional Inhibition | A belief that one should not express feelings/emotions. |
| Unrelenting Standards | A belief that one must meet excessively high-internalized standards of behavior. |
| Negativity/Pessimism | A constant focus on the negative aspects of life. |
| Punitiveness | A belief that self and other should be punished for mistakes. |

*Note:* Schema domain names highlighted in bold. Permission obtained to reproduce table. Shorey et al. (2013),List of Early Maladaptive Schemas, published in Clinical psychology & psychotherapy. PMC. Copyright and License information.

**Appendix H**

*Information relating to pilot participants:*

The first participant was a healthy adult (age 67) and the second was a male (age 20 years) with a mild learning disability. The justification for using these two participants to pilot the assessment was to ensure that the varying degree of ability would be taken into account within the timings.

| | |
|---|---|
| *Participant one:* | Healthy Female Adult (67 years old) |
| *Duration taken/one session:* | 1hr and 04 minutes (no break) |
| *Outcome:* | No fatigue or distress reported. |
| | *Notes:* Participant declined a break after 45 minutes. |
| *Participant two:* | Male with mild Learning Disability (20 years old) resident in a low secure forensic mental health setting. |
| *Duration taken/two sessions:* | 1hr and 22 minutes (break after one hour) |
| *Outcome:* | No fatigue or distress reported. |
| | *Notes:* Participant declined a break after 45 minutes. The initial session was booked for an hour and therefore this is what the participant expected thus we ended the session after an hour and arranged a second meeting in order complete the outstanding questionnaires. |

The estimated time provides a guideline only. It is anticipated that the battery of measures will take less than 1 ½ hrs to administer.

**APPENDIX I**

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

## PARTICIPANT INFORMATION SHEET

## Research Title: Mentalizing, attachment and schemas in young offenders with and without anti-social personality disorder

You are invited to take part in a research study. Before you agree to participate, it is important for you to understand why the research is being done and what it will involve. Please take your time to read the following information carefully and to discuss it with a professional if you feel this is appropriate. Please do not hesitate to ask any questions if anything is not clear, or if you would like more information.

**What is the purpose of the study?**
We know that certain psychological factors developed in early infancy and childhood may play a role in relation to offending behaviour. These relate to our ability to think about and to understand our own mind, as well as our feelings and those of others. They also help us to make sense of, and to predict the behaviour of others. Also, emotional connections such as the bond between a child and caregiver can help to explain our development and our personality, as well as how we relate to others. These psychological factors can help us to understand offending behaviour better and if we do, we may be able to improve rehabilitative outcomes for those affected by these difficulties.

**Why have you been chosen?**
All young people from this particular setting will be approached and invited to take part in this study.

**Do I have to take part?**
No, taking part is voluntary. You can decide that you do not want to participate and you do not have to give a reason. The services and standard of care and treatment that you currently receive will not be affected in any way, irrespective of your decision. If you do decide to participate, we will ask you to sign a consent form. If you decide to do so but later change your mind, you may withdraw your consent at any time without providing a reason. Also, if you do decide to take part, you can still refuse to answer any questions that make you feel uncomfortable or any point after agreeing to take part, you can still withdraw from the study. If you decide to withdraw, you data will be destroyed.

**What will I be asked to do if I take part?**
You will be asked to complete a short interview where you will be asked about some basic information about you (i.e. how old you are, how long you have been in education,

some basic information about your family and your offending history). You will then be asked to take part in a reading assessment and then complete some questionnaires. You can either complete them yourself after receiving the instructions, or the researcher can complete them on your behalf. It is estimated that the entire process will take up to an hour and a half however; you will be offered a break half way through the session.

**Are there any risks associated with taking part in this research study?**

The questionnaires in this study are asking you about your feelings and thoughts about yourself and others, as well as your relationships with others. As these questions are about some personal things, should you find it difficult we recommend that you mention this to the researcher or speak to a member of staff. You will not be alone when completing these questionnaires.

**Confidentiality**

All information that is collected about you during the course of this research will be kept strictly confidential. As we will be reporting average scores, your data forms part of a doctoral qualification in Forensic Psychology and findings may be reported in professional publications, reports or meetings, but you will not be identified in any way.

**Risk related issues**

If you behave in a manner, which is against prison rules or places either yourself or others at risk, it will be reported.

**Who has reviewed the study?**

This study (ref: 2015-218) has been approved by the ethical processes of the University of Nottingham and the National Offender Management Service (NOMS), National Research Committee (NRC).

**How long will the data be kept?**

Data will be kept intact for a period of seven years from the date of any publication. After the seven-year period has passed, all data will be destroyed.

**Contact for further information**

Should you require further information, wish to withdraw from the study, have a complaint or a query; please direct your request to the prison establishment.

**What do I need to do now?**

Thank you for taking the time to read this information sheet. The researcher will now ask you if you have understood the information detailed here and will answer any questions you may have. If you are still happy to continue, you will be asked to sign a consent form then you will be asked to begin the assessment.

**APPENDIX J**

# CONSENT FORM

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

**Research Title: Mentalizing, attachment and schemas in young offenders with and without anti-social personality disorder**

Name of researcher: Eliza-Jane Corson

Participant name:……..

Participant identification number:……

| | | **Please initial each box** |
|---|---|---|
| 1. | I confirm that I have read and understood the information sheet (version 3) for the above research study. I have had the opportunity to decide whether or not I want to be involved and to ask any questions. | |
| 2. | I understand that taking part is voluntary and that I am free to withdraw at any time or any point, without giving a reason or without the services and standard of care or treatment that I currently receive being affected in any way, irrespective of my decision. | |
| 3. | I understand that I have been asked to complete a short interview to provide basic information about myself; complete a reading assessment, and to complete questionnaires looking at psychological factors thought to contribute to offending behaviour. | |
| 4. | I understand that my responses will be fully anonymised and all identifiable information will be stored in a secure locked facility where only the researchers directly involved with the study will be allowed to access. | |
| 5. | I understand that the research contributes to a doctoral qualification in Forensic Psychology, and findings may be reported using average scores in publications, reports or meetings. I understand that I will not be identified in any way and that my data will be kept for seven years from the date of any publication, after which, it will be destroyed. | |
| 6. | I am aware of where I can get support, should I require it, at any point during the assessment process. | |
| 7. | I understand that any behaviour, which is against prison rules or behaviour that places either myself or others at risk will be reported. | |
| 8. | I agree to participate in this study. | |

If you have agreed to participate and have initialed all the above boxes, please sign below.

| …….. | …….. | …….. |
|---|---|---|
| Name (please print) | Signature | Date |

## APPENDIX K

### DEMOGRAPHIC QUESTIONNAIRE

**Research Title: Mentalizing ability, attachment and schemas in young offenders with and without anti-social personality disorder**

Name of researcher: Eliza-Jane Corson

Date:……..

---

1) Participant identification number:

2) Age:

3) Ethnic group:

*Choose one option that best describes your ethnic group or background*

White

a) English/Welsh/Scottish/Northern Irish/British ☐

b) Any other White background ☐

Mixed/Multiple ethnic groups

c) Any Mixed/Multiple ethnic background ☐

Asian/Asian British

d) Any Asian background ☐

Black/ African/Caribbean/Black British

e) Any Black/African/Caribbean background ☐

Any other ethic background not listed here ☐

f) Declined to answer ☐

4) Number of years in education:

5) Age at first <u>ever</u> entry into institution:

6) Number of years in institution (s):

7) Where you raised by your parents or in care?

a) Parents ☐ b) Where your parents married? Yes ☐ No ☐

c) Care ☐ d) Age first in care?

8) As a young child, if you fell over and hurt yourself, would there be someone to comfort you?

a) Yes ☐ b) No ☐

9) Do you have siblings?

a) Yes ☐
b) No ☐
c) Declined to answer ☐

10) If yes, how many?

a) 1 ☐
b) 2 ☐
c) 3 ☐
d) 4 ☐
e) 5+ ☐

11) Also, if so, what is your birth order? (i.e., first child, second child, etc.)

a) First ☐
b) Second ☐
c) Third ☐
d) Fourth ☐
e) Fifth ☐
f) Other ☐

12) How would you describe the nature of your offending behaviour *(please select all that apply)?*

| | **CONVICTED** | **NOT CONVICTED** |
|---|---|---|
| a) Violent | ☐ | ☐ |
| b) Sexual | ☐ | ☐ |
| c) Acquisitive (theft/burglary) | ☐ | ☐ |
| d) Fraud & forgery | ☐ | ☐ |
| e) Vandalism & criminal damage (including arson) | ☐ | ☐ |
| f) Racially or religiously aggravated offences | ☐ | ☐ |
| g) Drug offences | ☐ | ☐ |
| h) Other (please state) | ☐ | ☐ |
| i) Declined to answer | ☐ | ☐ |

## APPENDIX L

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Our reference: RGS 15062

0115 9515679
sponsor@nottingham.ac.uk

Research and Graduate Services
**University of Nottingham**
King's Meadow Campus
Lenton Lane Nottingham
NG7 2NR

**National Offender Management Service (NOMS)**
Clive House,
70 Petty France,
London
SW1H 9EX

Associate Professor Vincent Egan
Address University of Nottingham
Room B23 Yang Fujia, Jubilee Campus
Wollaton Road, Nottingham
NG8 1BB

22 June 2015

Dear Sir or Madam,

Sponsorship Statement
**Re: Mentalizing ability, attachment and schemas in young offenders with and without anti---social personality disorder**

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

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

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

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

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

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

Yours faithfully

Angela Shone
Head of Research Governance
University of Nottingham

world-changing research
from The University of Nottingham

## APPENDIX M

The University of Nottingham

**Faculty of Medicine and Health Sciences**

Research Ethics Committee
School of Medicine Education Centre
B Floor, Medical School
Queen's Medical Centre Campus
Nottingham University Hospitals
Nottingham
NG7 2UH

Direct line/e-mail
+44 (0) 115 8232561
Louise.Sabir@nottingham.ac.uk

20th March 2015

Eliza-Jane Corson
Doctoral Student in Forensic Psychology
c/o Dr Vince Egan
Associate Professor of Forensic Psychology Practice
Centre for Family and Forensic Psychology
Psychiatry and Applied Psychology
School of Medicine
Room B23, YANG Fujia Building
Jubilee Campus
Nottingham
NG8 1BB

Dear Eliza-Jane

**Ethics Reference No:** J12032015 SoM PAPsych DFP- please always quote
**Study Title:** Mentalizing ability, attachment and schemas in young offenders with and without anti-social personality disorder.
**Chief Researcher/Academic Supervisors:** Dr Vince Egan Associate Professor of Forensic Psychology Practice, Centre for Family and Forensic Psychology, Dr Birgit Völlm, Clinical Associate Professor and Reader in Forensic Psychiatry, Head of Section Forensic Mental Health, Psychiatry and Applied Psychology, School of Medicine.
**Lead Researcher/Student:** Eliza-Jane Corson, Doctoral Student, Forensic Psychology, Psychiatry and Applied Psychology, School of Medicine
**Duration of Study:** 2015-2016 12 mths **No of Subjects:** 76 (18-21 yrs)

Thank you for your letter dated18th March 2015 responding to the comments made by the Committee and the following documents were received:

**Mentalizing ability, attachment and schemas in young offenders with and without anti-social personality disorder:**

- FMHS Research Ethics Application dated 18th March 2015
- Protocol Version 2/17.03.15
- Participant Information Sheet Version 2/17.03.15
- Consent Form Version 1/10.03.15
- Demographic Questionnaire Version 2/17.3.15
- National Adult Reading Test (NART; Nelson, 1982&1991)
- The Personality Diagnostic Questionnaire-4+ (PDQ-4+; Hyler 1994)
- Reading the Mind in the Eyes' (Baron-Cohen et al 1997 and 2001)
- Adult Attachment Scale (Collins & Read, 1990)
- The Young Schema Questionnaire – Short form (YSQ-S3); Young 2005)

These have been reviewed and are satisfactory and the study is approved.

Approval is given on the understanding that the Conditions of Approval set out below are followed.

1. Permission is obtained from NOMS and the local YOI institutions involved and copies of the letters of permission are submitted to the Committee for the record.

The University of Nottingham

2. You must follow the protocol agreed and inform the Committee of any changes using a notification of amendment form (please request a form).

3. You must notify the Chair of any serious or unexpected event.

4. This study is approved for the period of active recruitment requested. The Committee also provides a further 5 year approval for any necessary work to be performed on the study which may arise in the process of publication and peer review.

5. An End of Project Progress Report is completed and returned when the study has finished (Please request a form).

Yours sincerely

**Dr Clodagh Dugdale**
**Chair, Faculty of Medicine & Health Sciences Research Ethics Committee**

## APPENDIX N

National Offender Management Service

Mrs Eliza-Jane Corson,
[redacted]

National Offender Management Service
National Research Committee
Email: National.Research@noms.gsi.gov.uk

17 September 2015

**APPROVED SUBJECT TO MODIFICATIONS – NOMS RESEARCH**

**Ref: 2015-218**
**Title: Mentalizing, attachment and schemas in young offenders with and without anti-social personality disorder (ASPD)**

Dear Mrs Corson,

Further to your application to undertake research across NOMS, the National Research Committee (NRC) is pleased to grant approval in principle for your research. The Committee has requested the following modifications:

- The following should be included in all participation information sheets/consent forms:
  - It must be made clear to research participants that they can refuse to answer individual questions or withdraw from the research until a designated point, and that this will not compromise them in any way.
  - Participants should be informed how their data will be used and for how long it will be held.
  - It needs to be clear that the following information has to be disclosed: behaviour that is against prison rules and can be adjudicated against; illegal acts, and behaviour that is potentially harmful to the research participant (e.g. intention to self-harm or complete suicide) or others.
  - Potential avenues of support should be specified for those who are caused any distress or anxiety.
  - The respondent should be asked to direct any requests for information, complaints and queries through their prison establishment/community provider. Direct contact details should not be provided.
- In the final research reports, the limitations should be clearly set out (e.g. the samples may not be fully representative).

Before the research can commence you must agree formally by email to the NRC (National.Research@noms.gsi.gov.uk), confirming that you accept the modifications set out above and will comply with the terms and conditions outlined below and the expectations set out in the NOMS Research Instruction

# APPENDIX O

## Mentalizing, Attachment and Schemas in Young Offenders with and without Anti-Social Personality Disorder

Eliza-Jane Corson (researcher) email: msxec3@nottingham.ac.uk
Associate Professor Vincent Egan and Professor Birgit Völlm (academic supervisors)
University of Nottingham, Division of Psychiatry and Applied Psychology, School of Medicine

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

### Aims and Objectives

- The primary objective is to investigate whether mentalizing ability; attachment styles and schemas differ in young offenders with anti-social personality disorder (ASPD) when compared to young offenders with other personality disorders (PD's).
- The secondary objective is to investigate whether mentalizing ability; attachment styles and maladaptive schemas predict ASPD.

### Introduction

Research into the aetiology of anti-social personality disorder (ASPD) has found that a combination of genetic vulnerabilities and psychosocial factors contribute to the development of the condition (Cadoret, Yates, Troughton, Woodworth & Stewart, 1995). Offending behaviour is a key factor in ASPD and this is believed to be perpetuated by a number of psychosocial factors. These include difficulties in the individual's attachment experience during infancy and early childhood, difficulties in relation to mentalizing, and the formation of maladaptive schemas which make them prone to over-perceive threat. Few studies have examined mentalizing ability, attachment styles and schemas in relation to young offenders with ASPD. This study therefore intends to fill the gap in the literature.

### Methodology

Participants were recruited from a Youth Offender Institution(YOI)

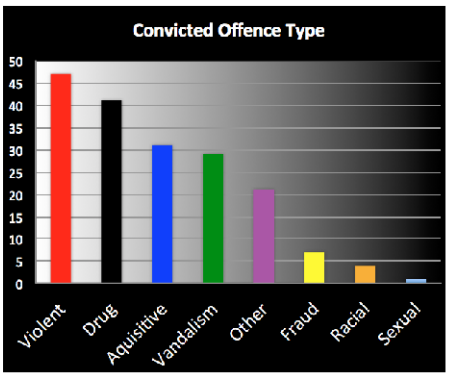
- N=80 males, ages 18-21 (M=19.64, SD=1.03).

*Procedure/measures:*

- Demographic questionnaire (age, ethnic group, years in education, age at first entry into institution, number of years in institution, raised by, age first in care, parental marital status, comfort seeking as young child, siblings, birth order and offending history).
- National Adult Reading Test (NART; Nelson, 1981 & 1991)
- Personality Diagnostic Questionnaire 4+' (PDQ4+; Hyler, 1994)
- Reading the Mind in the Eyes (Baron-Cohen, wheelwright, Raste & Plumb, 2001)
- Adult Attachment Scale - Revised (Collins & Read, 1996)
- Young Schema Questionnaire-Short Form-3 (YSQ-S3;Young 2005)

### Results

Figure 1. History of convicted offences




Note: 'Other' offence included firearms, driving, handling stolen goods or not otherwise disclosed by offenders.

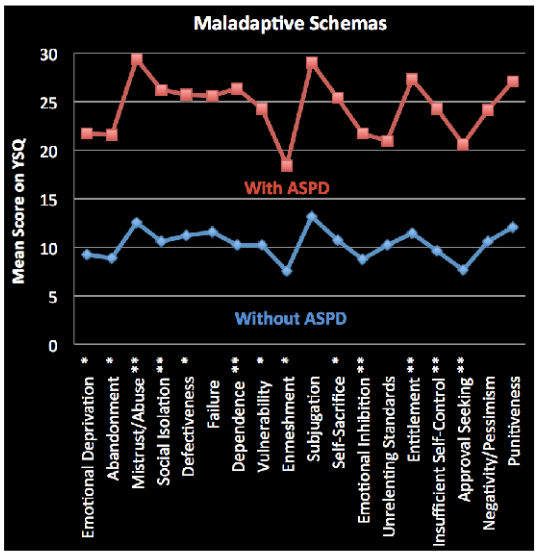
### Results

Table 1. ASPD Mentalizing and Attachment Style

| | Mentalizing | | Attachment Style: Close | | Depend | | Anxiety | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| Paranoid | .03 | .01 | -.16 | -.55* | -.24 | -.44 | .41** | .31 |
| Histrionic | .03 | -.07 | -.04 | .23 | -.19 | .09 | .37** | .32 |
| Antisocial | .04 | .17 | .14 | .16 | -.07 | -.31 | .11 | -.20 |
| Obsessive Comp. | .08 | -.29 | -.13 | .01 | -.28* | -.26 | .32** | .48 |
| Schizoid | -.20 | .03 | -.27* | -.28 | -.35** | -.34 | .46** | .13 |
| Narcissistic | .07 | .07 | -.08 | -.12 | .01 | .17 | .09 | -.20 |
| Avoidant | -.13 | -.29 | -.53** | -.29 | -.43** | -.04 | .59** | .53 |
| Negativistic | .11 | -.24 | -.21 | -.28 | -.32* | -.33 | .53** | .84** |
| Schizotypal | -.05 | -.35 | -.53** | -.36 | -.37** | -.31 | .60** | .67* |
| Borderline | .01 | -.16 | -.25* | -.29 | -.35** | -.32 | .43** | .54 |
| Dependent | -.22 | -.14 | -.27* | -.24 | -.25* | -.42 | .64** | .78** |
| Depressive | .12 | -.09 | -.32* | -.34 | -.48** | -.50 | .47** | .79** |
| *Validity Scales:* | | | | | | | | |
| Too Good | .14 | .32 | -.16 | -.19 | -.25* | .38 | .29* | -.15 |
| Suspect | -.06 | - | .04 | - | -.10 | - | .18 | - |

Note: *1=ASPD (n=65), 2 = without ASPD (n=15), *p<0.05; **p<0.01 (two-tailed)*

Figure 1. ASPD and Schemas




Note: Higher scores indicate greater presence of maladaptive schemas (Range 1-6). ** p<0.05; **p<0.01 (two-tailed)*

Independent sample T-Tests showed a significant difference in relation to respondents mean scores within certain schemas (as shown above), between those with a diagnosis of ASPD and those without.

### Conclusion

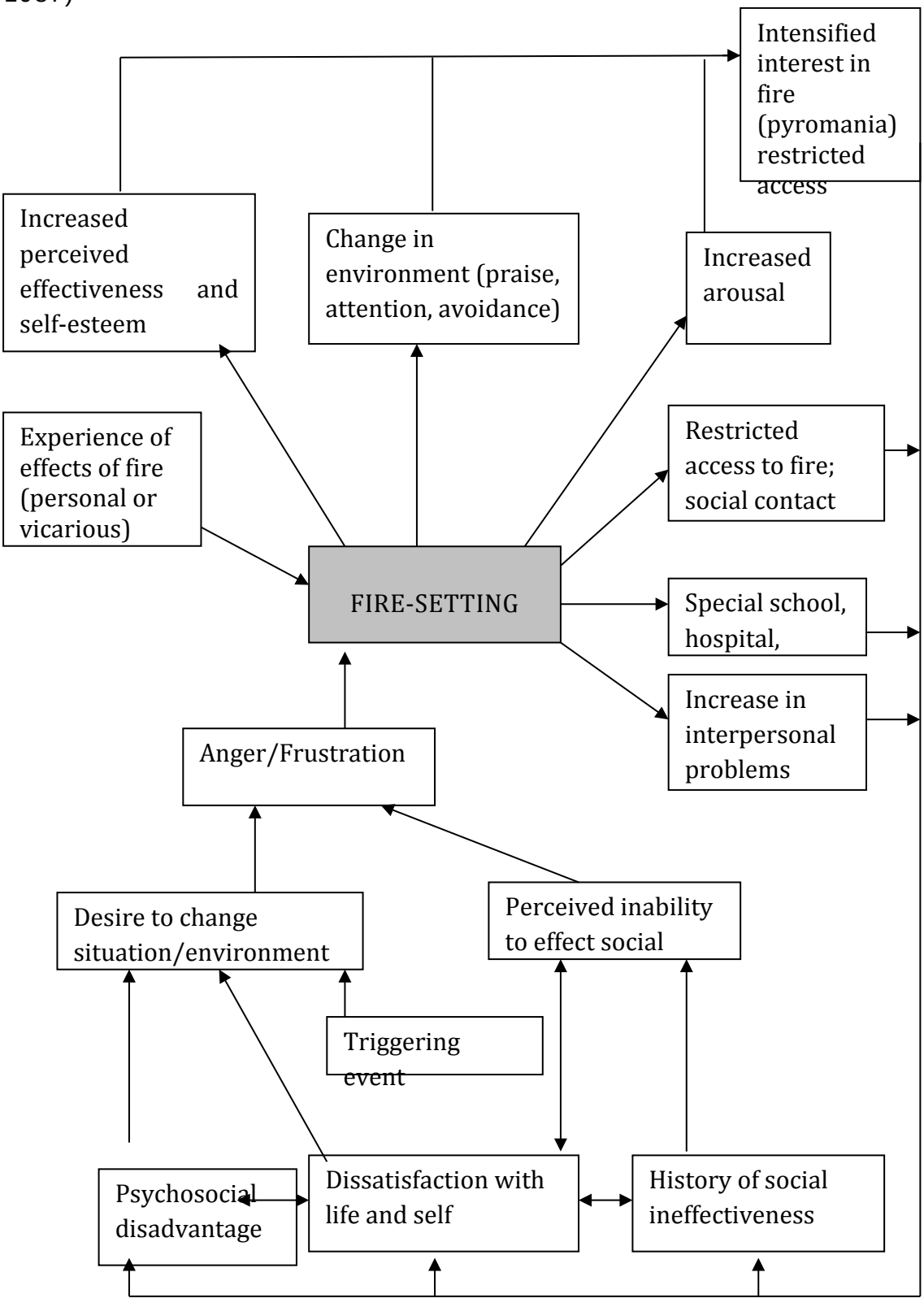
- Young offenders with ASPD do not differ in mentalizing ability (facial recognition task) when compared to those without.
- Young offenders with ASPD are more likely to have dependent and anxious attachment style when compared to those without.
- Young offenders with ASPD are more likely to present with maladaptive schemas when compared to those without.

### References

Cadoret, R. J., Yates, W. R., Troughton, E., Woodworth, G., & Stewart, M. A. (1995). Genetic-environmental interaction in the genesis of aggressivity and conduct disorders. *Arch Gen Psychiatry*, 52(11), 916-924

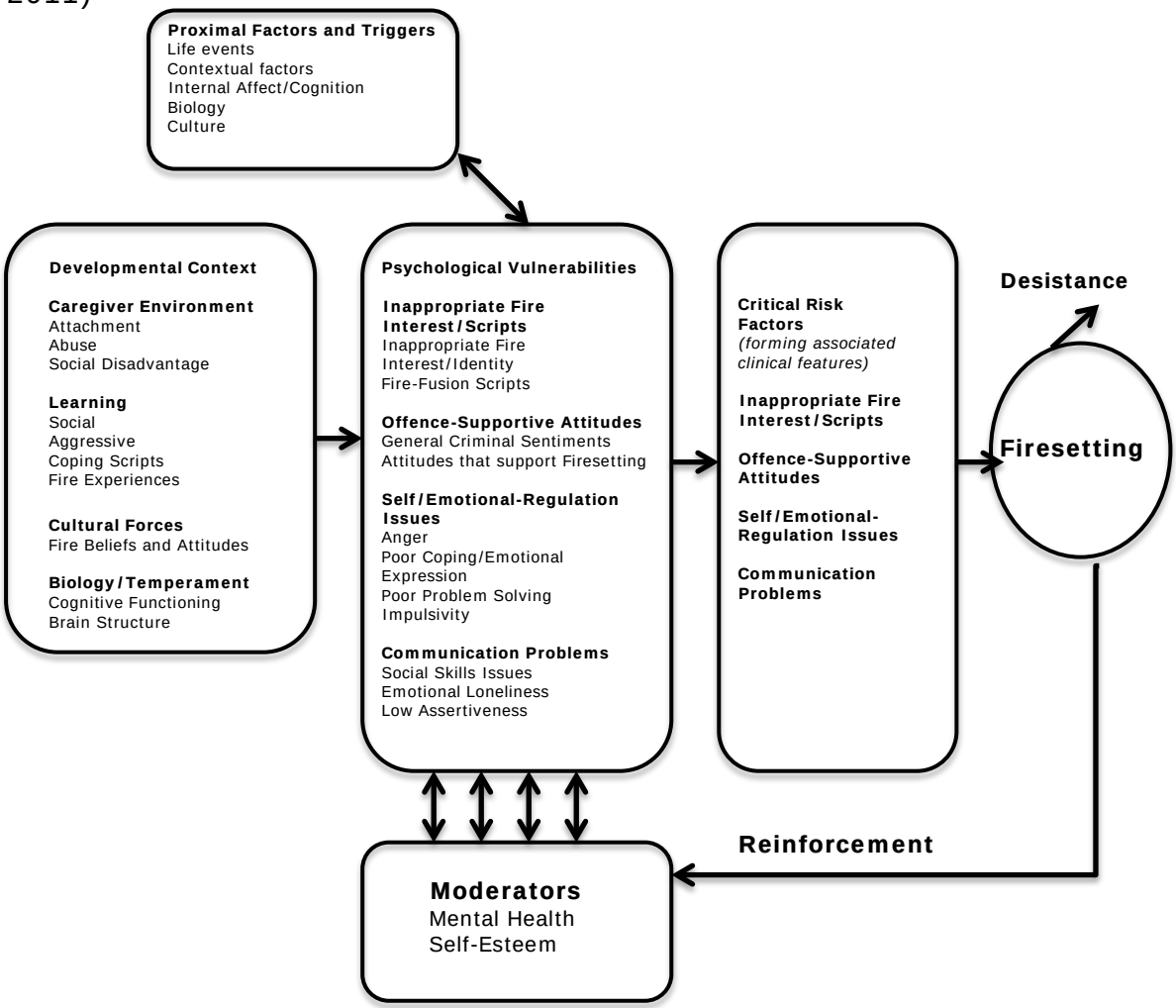
**APPENDIX P**

A formulation of recidivistic arson based on the Functional Analysis Theory: The Only Viable Option (Jackson 1994 & Jackson, Glass & Hope, 1987)



## APPENDIX Q

Tier 1 of the M-TTAF: Overarching Theoretical Framework (Gannon et al. 2011)



## APPENDIX R

Historical Clinical Risk Management-20 Version 3 (HCR-20v3; Douglas, Hart, Webster, & Belfrage, 2013) – Patient X's outcome

| | *Historical Items* | *Presence* | *Relevance* |
|---|---|---|---|
| H1 | Problems with violence | Yes | High |
| H2 | Problems with other anti-social behaviour | Yes | High |
| H3 | Problems with relationships | Possible | Moderate |
| H4 | Problems with employment | Possible | Moderate |
| H5 | Problems with substance use | No | Low |
| H6 | Problems with major mental disorder | Possible | Low |
| H7 | Problems with personality disorder | Yes | High |
| H8 | Problems with traumatic experiences | Yes | High |
| H9 | Problems with violent attitudes | Yes | High |
| H10 | Problem with treatment or supervision response | Yes | High |
| Other | Self-Harm, suicide, vulnerability etc. | Yes | High |
| | *Clinical Items* | *Presence* | *Relevance* |
| C1 | Problems with insight | Yes | Moderate/High |
| C2 | Problems with violent ideation or intent | Yes | High |
| C3 | Recent problems with symptoms of major mental illness | No | Low |
| C4 | Recent problems with instability | Yes | High |
| C5 | Recent problems with treatment or supervision response | No | Moderate |
| | *Risk Factors (Institutional Plans)* | | |
| R1 | Future problems with professional services and plans | Possible | Moderate |
| R2 | Future problems with living situation | No | Low |
| R3 | Future problems with personal support | Possible | Moderate |
| R4 | Future problems with treatment or supervision response | Possible | Moderate |
| R5 | Future problems with stress or coping | Yes | High |

**APPENDIX S**

Table 1. FIP-DID Treatment Targets and Associated Psychometric Assessments

| **Treatment Need** | **Psychometric Assessment** |
|---|---|
| Fire Interest/Identification | - Fire Interest Rating Scale/ Fire Assessment Scale (Murphy & Clare, 1996) |
| Offence Supportive Attitudes | - Fire Attitude Scale (Muckley, 1997)<br>- Blame Attribution Inventory (Gudjonsson & Singh, 1989) |
| Communication and Relationship | - Emotional Problems Scale – includes self-esteem and assertiveness subscale (Prout & Stromer, 1991) |
| Self-Management/Coping | - Staxi-2 (Spielberger, 1999)<br>- The Novaco Anger Scale and Provocation Inventory (NAS-PI; Novaco, 2003)<br>- Glasgow Anxiety Scale for People with Intellectual Disabilities (GAS-ID – Mindham and Espie, 2003)<br>- Glasgow Depression Scale for People with Intellectual Disabilities (GDS-ID – Cuthill, Espie and Cooper, 2003)<br>- Nowicki-Strickland Internal-External Locus of Control Scale (Nowicki & Duke, 1974) |
| Impression Management/Self Deception | - Paulus Deception Scale (Paulhus, 1998) |

## APPENDIX T

**Functional Analysis Formulation relating to** Patient **X's index Offence**

## APPENDIX U

## Firesetting Intervention Programme for People with Developmental and Intellectual Disabilities (FIP-DID)

*Brief over:*

Programme Aim

To increase patients understanding of the factors associated with their firesetting.

To enable patients to develop appropriate strategies for managing their firesetting risk.

Treatment tends to takes a Good Lives Approach. Interventions are primarily CBT in orientation, although psychotherapeutic element is designed to encourage self-reflection, healthy emotional and social expression, and the development of a strong therapeutic relationship.

Referrals

Those that pose a risk of intentional firesetting that may be harmful to themselves or others. They do not need to fully admit their firesetting to be eligible, neither do they need to have set a fire (i.e. caught using accelerants and attempting to set a fire).

Patients who have used fire in the service of clear higher order goals (e.g. to cover up another crime) are unsuitable and would benefit more from a different offending behaviour group.

Brief overview of treatment targets include the following:

- Inappropriate Fire Interest
- Offence-Supportive Thinking
- Communication and Relationships
- Self-Esteem
- Empathy

Format

28 weeks - 2 hour group (plus 15 mins break) plus 1hr individual follow up – crucial for supporting patients with any presenting issues/homework assignments and for ensuring key concepts have been understood and are being practiced outside of the group.

Homework – crucial aspect of the programme. Such tasks are vital to the success of the programme and should be encouraged and reinforced by facilitators and other multidisciplinary team members.

At the end of treatment each patient is supported to develop an individualised Relapse Prevention Plan, highlighting relevant background factors, risky thinking and behaviour patterns, and high-risk situations. The Good Lives Model is used as a framework to highlight coping strategies to lead a life without offending.

**NOTE:** This programme was delivered on a one-to-one basis in order to meet Patient X's needs.

## APPENDIX V

**Table 1** DSM-IV-TR Diagnostic Criteria for Pyromania

- Deliberate and purposeful firesetting on more than one occasion. Tension or affective arousal before the act.
- Has a fascination with, interest in, curiosity about, or attraction to fire and its situational contexts (e.g., paraphernalia, uses, and consequences).
- Pleasure, gratification, or relief when setting fires or when witnessing or participating in their aftermath.
- The firesetting is not done for monetary gain, as an expression of socio-political ideology, to conceal criminal activity, to express anger or vengeance, to improve one's living circumstances, in response to a delusion or hallucination, or as a result of impaired judgment (e.g., in dementia, mental retardation, or substance intoxication).
- The firesetting is not explained by conduct disorder, a manic episode, or antisocial personality disorder.

## APPENDIX W

Pathological arson

Pathological arson ((Jackson 1994 & Jackson et al., 1987) refers to an abnormal mental state. They proposed five central attitudes related to ‘pathological arsonist’, as follows:

1. Recidivism – Firesetting is repeated (as opposed to a one-off act), usually over a number of months or years.
2. Target is usually property rather as opposed to other people – deliberate intention to commit injurious act’s are rare, however this can occur as a consequence of a property fire, as opposed to a direct attempt to harm others.
3. Firesetters generally act alone or with a consistent accomplice. The pathological arsonist is usually a lone offender.
4. There is evidence of psychiatric, personality or emotional problems within the pathological arsonist.
5. Motives for firesetting behaviour are other than financial or political gain, which often motivates other acts of arson.