



Attachment & Emotional  
Functioning in Violent Offenders: Is  
Attachment Pattern Related to  
Victim Choice?

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## **ABSTRACT**

**Background & Introduction:** Violence is a pervasive problem that is extremely costly to our society. Research in this area is therefore crucial in order that prevention strategies can be considered. Attachment theory provides a useful framework for understanding violence as it acknowledges the importance of both interpersonal and developmental factors. The theoretical literature suggests that attachment is associated with violence, but the evidence was equivocal as to whether insecure attachment was a risk factor for criminality, psychopathology more generally, or both. Consequently, a systematic review of the literature was conducted using meta-analytic methods. Results indicated that insecure attachment was strongly associated with all types of criminality (i.e. sexual offending, violent offending, non-violent offending, and domestic violence) even in the absence of psychopathology. Further sub-group analyses indicated differences in attachment patterns between sexual offenders and violent offenders, for example. The implications of the findings are discussed and suggestions for further research made.

The present empirical study sought to address some of the questions raised by the meta-analysis, and to consider the influence of potential mediating variables, as insecure attachment is not sufficient to fully explain offending behaviour. Consequently, theory of mind (ToM) and emotional intelligence (EI), two variables proposed to mediate the relationship between insecure attachment and violence, were examined in a sample of violent offenders. It was hypothesised the majority of the sample would be insecurely attached, and that deficits in ToM and EI would increase as attachment security decreased. The possibility that attachment served not only as a general risk factor, but also as a victim specific one, was explored by examining whether attachment pattern was related to victim choice.

**Method:** Assessments of adult attachment, ToM, and EI were administered to a group of 49 violent offenders both with and without mental disorder. File information pertaining to whether participants had ever been violent towards a significant other or not was also collected in order to categorise participants into groups of those who had a history of violence towards attachment figures, and those who did not. Data were analysed using *t*-tests and Pearson product moment correlations.

**Results & Discussion:** Consistent with the findings of previous research, the majority of the sample was found to be insecurely attached. They were also significantly more anxious and avoidant in their attachments in comparison with normative data. No significant differences in attachment were observed between the mentally disordered offending group and the non-mentally disordered offending group. Rather, the levels of insecurity were similarly high across both groups, which would be consistent with the notion that insecure attachment is associated with criminality more generally as opposed to simply being a risk factor for mental disorder. The proposed association between attachment insecurity and poorer ToM abilities was not supported. The entire sample was found to be slightly below average with respect to EI, and the hypothesis that as attachment insecurity increased EI would decrease was statistically supported. No significant differences in attachment were observed when comparing those who had a history of violence towards attachment figures and those who did not. The clinical and theoretical implications of the findings are discussed, as well as the strengths and limitations of the study. A number of recommendations for future research are made.

## **INTRODUCTION**

### **Chapter 1 – An Introduction to Attachment Theory & Violence**

#### ***The Problem of Violence***

*“We humans are the most complex and puzzling of living creatures. We can create, nurture, protect, educate and enrich. Yet we also degrade, humiliate, enslave, hate, destroy and kill...Violence permeates our society.” (Perry, 2001, p. 221).*

Violence is all around us; a phenomenon that is extremely costly to our society in terms of the impact on victims, perpetrators, and the economy. Victims ultimately suffer and can go on to develop a wide range of psychological difficulties as a consequence (Carmen *et al.*, 1984; Hodgson, 2005). For many, their entire belief systems in terms of their sense of self, others, and the world will be dramatically altered, thus fundamentally impacting upon how they live their lives following victimisation (Ehlers & Clark, 2000). Perpetrators are incarcerated, stigmatised, and in some instances traumatised themselves (Goff *et al.*, 2007). The burden on the economy is also substantial. For example, it has been estimated that the National Health Service (NHS) in Scotland alone spends between £258 million and £517 million every year in the treatment of violence (Violence Reduction Unit, 2006). An exact figure for the Scottish economy as a whole is difficult to determine as there are multiple costs, but one economist has suggested that the expense per annum could be as high as £3 billion (Violence Reduction Unit, 2006).

Unfortunately, the occurrence of violent crime is increasing. For example, homicide rates in Scotland were noted to be 26% higher in 2006/07 than in 2005/06 (The Scottish Government, 2007). Whilst some might argue that these represent chance fluctuations, figures from The Scottish Crime Survey indicate otherwise, as a 45% rise in violent crime across the last two decades was noted (McVie *et al.*, 2004).

Inpatient violence also represents a significant problem within forensic psychiatric hospitals at all levels of security (i.e. from low to maximum). A recent report published by Marshall *et al.* (2008) indicated that across six Scottish secure hospitals housing just over 300 patients, more than 3500 incidents of violence were recorded within a three year period. Violence is similarly problematic within UK prisons. Figures published by the Howard League for Penal Reform (2009) indicated that violent incidents had increased by 31% between 2004 and 2008 in prisons in England and Wales. Serious violence, both between prisoners, and by prisoners towards staff, is similarly problematic within Scottish prisons (Ross, 2006). Consequently the impact on forensic hospitals and prisons is significant: staff, prisoners and patients sustain both physical and psychological injuries; disruption to regimes and programmes occurs; property is destroyed; and those who are violent are detained for longer in more restrictive and thus expensive conditions (Cooke *et al.*, 2008). Research which furthers our understanding of violence is therefore crucial in order to develop strategies for prevention, and to assist in the development of therapeutic interventions for violent offenders, which should in turn contribute to the reduction and management of further violent behaviour.

### ***Defining & Understanding Violence***

Surprisingly, the term “violence” has no clearly defined meaning despite the fact that there is a vast literature base devoted to the subject (de Zulueta, 2006). The definition widely accepted in forensic clinical settings is that proposed by Webster *et al.* (1997) who state that “...violence is actual, attempted, or threatened harm to a person or persons...” (p. 24). Although there are alternative definitions, this conceptualisation is helpful as it is simple yet widely inclusive. It also captures the essence of violence as interpersonal in nature.

Interpersonal violence encompasses a wide range of behaviours, with each violent act occurring as a result of the interaction between multiple risk factors operating simultaneously in the absence of sufficient protective factors (Webster *et al.*, 1997). These risk factors are generally considered to be located within the individual (i.e. biopsychosocial factors) and their environment (e.g. situational variables), and violence is thought to occur as a result of a complex interaction between factors across domains (Webster & Hucker, 2007). However, violence often occurs between individuals who are bonded or attached to each other, regarded by Meloy (2003) as “one of the great paradoxes of human existence” (p. 509). For example, 80% of the recorded homicides in Scotland in 2007/08 were perpetrated by someone known to the victim, with 28% of total murders committed by a relative or partner (The Scottish Government, 2008). Unfortunately the problem of interpersonal violence is likely to be much more pervasive than we are currently aware, as it is widely acknowledged that violent crime statistics grossly underestimate the true incident rate. For example, it is estimated that only 5% of all occurrences of intimate partner violence are officially recorded (Perry & Pollard, 1998). It is therefore clear that violence is an insidious problem that requires to be better understood in order that we can begin to consider strategies for prevention.

There are many methods of conceptualising violence, but violence that involves one individual harming another is essentially an interpersonal phenomenon, and how we behave in relationships is thought to be governed largely by our earlier experiences in terms of attachment and our capacity to mentalise (i.e. our ability to understand mental states) (Fonagy & Target, 1999). Attachment theory can therefore provide a useful framework for understanding violence as it recognises the crucial significance of developmental factors and interpersonal relationships. That said, attachment is only one potential risk factor interacting with others (as described above) to contribute to an individual’s propensity for violence. Nonetheless, attachment is a clinically useful construct as it can help us to understand how offenders may relate to others within their current environment, thus having implications for therapeutic interventions (Adshead, 2004). Furthermore, as attachment has only gained recognition as a potential violence risk factor relatively recently in comparison with other more well established risk factors (e.g. substance misuse, Webster *et al.*, 1997), there is still some way to go in terms of determining how attachment fits conceptually into overall risk formulation, particularly in relation to different types of violence. However, before applying the theory to the aetiology of violent crime, it is important to understand attachment in the context of normal development. As Fonagy (2004) states: “the answer to the riddle of how an individual can lose restraint over their propensity to injure others must lie in what is ordinary rather than extraordinary” (p. 14).

### ***Attachment Theory & Development***

One of the central tenets of attachment theory is that human beings have an innate propensity to form strong emotional bonds with others (Holtzworth-Munroe *et al.*, 1997). Originally conceptualised by Bowlby (1969) and studied in infants, attachment is considered to be a biologically based system that promotes survival by ensuring that children maintain proximity to their caregivers, particularly when in the presence of threat. Consequently, the attachment behavioural system is considered to be no less a part of human genetic programming than feeding or mating; all of which maximise survival and promote reproductive fitness (Bowlby, 1969). Thus, attachment is inevitable, but the formation and course of the bonds forged (i.e. whether adaptive or maladaptive, secure or insecure) will be determined largely by environmental factors, the quality of caregiver interactions, and how the relationship is perceived by the infant (Rich, 2006).

As part of the attachment behavioural system, infants have an innate repertoire of behaviours (e.g. smiling, crying, etc) that are designed to elicit caregiver proximity (Wallin, 2007). Such proximity and attachment bonds also promote the establishment of a “secure base” (Bowlby, 1988). That is, when attachment figures are available as a source of protection and support, their children then feel safe to explore their environment, thus aiding emotional, cognitive, and physical development (Wallin, 2007). The secure base also provides a safe haven and optimally a source of comfort should retreat become necessary (Bowlby, 1998). As children develop representational skills, they begin to construct mental representations of their own secure base experiences which serve to retain the lessons of prior experience whilst remaining malleable to a degree in light of significant new experience (Waters *et al.*, 2002).

However, physical proximity of a caregiver in and of itself is not sufficient for the formation of a secure attachment bond as parents can be emotionally unavailable to their children for a variety reasons (e.g. due to mental health difficulties or substance misuse) even if they are physically present (Wallin, 2007). Furthermore, the child’s appraisals of the attachment relationships with caregivers (i.e. “felt security”) are crucial as attachments are not only relevant during the early years, but rather serve as the template for how we behave in and perceive our relationships throughout the lifespan (Rich, 2006). Consequently, for the developing child, the function of the attachment relationship goes beyond providing security; it is the mechanism through which the infant learns about themselves and the social world (Shaw & Dallos, 2005).

Gergely and Watson (1999) suggest that children have an innate “contingency detection module” through which the earliest forms of self-awareness develop. During the first two to three months of life infants have been observed to seek out and explore stimuli that are perfectly response contingent (e.g. repetitive leg kicking) (Schmuckler, 1996). It is thought that this allows the infant to determine what they have complete control over, thus enabling the development of a primary representation of the bodily self, which in turn helps equip the baby to cope with its environment (Gergely & Watson, 1999). From the age of approximately three months and beyond, infants switch from self exploration to representation and exploration of their social environment, commencing with caregiver interactions (Gergely & Watson, 1999). For example, the child learns a series of “if-then” contingencies that will

predict future behaviour. Any learning that takes place in the context of the attachment relationship will differ depending on the nature of the relationship itself (i.e. whether secure or insecure, with a secure attachment being the optimal bond). For example, the securely attached child might learn “if I cry, then I will be comforted”, whereas the insecurely attached child might learn “if I cry, then I will be ignored” (Shaw & Dallos, 2005). Bowlby (1969) suggested that infants internalise these early social experiences by the end of their first year into “internal working models” which then facilitate the child’s understanding and predictions of how their world might unfold. “Thus an unwanted child is likely not only to feel unwanted by his parents, but to believe that he is essentially unwanted, namely unwanted by anyone” (Bowlby, 1973, p. 204).

A working model of the self, or the foundation for the self-concept, begins to develop in this way, as does the infant’s internal working models of other people (Shaw & Dallos, 2005). Research has demonstrated that the extent to which these models contain positive or negative information is a function of attachment security (Mikulincer, 1995), and that affect regulation strategies are organised around these beliefs, thereby affecting the development of the child’s emotional functioning (Mikulincer *et al.*, 2003). Furthermore, any insecure patterns established in childhood are likely to transfer to adolescence and beyond, thus potentially having consequences for all future social interactions (Shaw & Dallos, 2005). Attachment theory has therefore provided a model of psychopathology as well as a model of normal development since its inception. The formation and normal course of attachment relationships, as well as the implications of atypical attachment patterns (and their relationship to psychopathology), are central to the theory (Sroufe *et al.*, 1999).

Indeed, Bowlby (1973) proposed that the nature of the internal representations of attachment experiences (i.e. whether based on secure or insecure bonds) would lead to individual differences in personality development, as well as varying behavioural and emotional responses in the context of interactions with attachment figures. These ideas were further developed and operationalised by Ainsworth *et al.* (1978) who examined individual differences in infant attachment security under experimental conditions using the “strange situation” procedure. This involved observing children’s reactions to brief periods of separation from their mother, as well as contact with a stranger, in a controlled environment. The infant’s response to the departure and return of their caregiver, and their levels of exploration and play throughout were noted to fall broadly into one of three patterns. Ainsworth *et al.* (1978) categorised these behavioural responses as being either secure, anxious/ambivalent, or avoidant; whereby the securely attached child would show distress initially during separation but appeared happy when their mother returned. The anxious-ambivalent child, on the other hand, would show an extreme distress response in the face of separation but demonstrate ambivalence upon reunion (e.g. seeking proximity whilst rejecting comfort). Finally, the avoidant child would demonstrate little in the way of emotional responsiveness during the initial separation or reunion, almost as if the presence of the mother was of no significance.

A fourth category termed “disorganised/disorientated” was added later when Main and Solomon (1990) observed a range of behaviours that could not be coded under the three way classification system. These behaviours included, for example, stereotypies, freezing, an apparent fear of the parent, confusion, and disorientation. Such actions were considered to be characteristic of a lack of coherent attachment strategy, and were most commonly observed in abused/traumatised infants (Solomon & George, 1999).

The strange situation procedure was the starting point for an abundance of research which indicated that different attachment strategies are adopted depending upon the individual’s history of interactions with attachment figures (Holtzworth-Munroe *et al.*, 1997). A number of methods for assessing attachment in adulthood have also been developed, with one of the most well known being the Adult Attachment Interview (AAI; George *et al.*, 1996) which is used to categorise an individual’s attachment representations using a semi-structured interview methodology. Different terminology and categories are used throughout the attachment literature to describe variance in attachment strategy, but the three major categories originally identified by Ainsworth *et al.* (1978) (i.e. secure, avoidant, and anxious-ambivalent) are usually present in most attachment measures as either categorical or dimensional constructs (Fraleigh & Waller, 1998). When assessing adult attachment using the AAI, the “disorganised/disorientated” category from the strange situation procedure corresponds with the “unresolved/cannot classify” AAI category (Main & Solomon, 1990). It is also worth noting that in the classification of adult attachment patterns, the term “dismissive” is often used interchangeably with “avoidant”, and that the term “preoccupied” is often used to represent attachment anxiety (Ross, 2004).

### ***Attachment, Emotional Development, Mentalisation & Theory of Mind***

The biopsychosocial theory of emotional development proposes that affective communication between the infant and primary caregiver is established at the very beginning of life (Bowlby, 1969). Within the context of a secure attachment relationship, the infant’s emotional states are modulated by the primary caregiver in order to make them more manageable (Fonagy, 2004). This happens via the related processes of attunement, containment, and parental affect mirroring (Gerhardt, 2004).

The social biofeedback theory of parental affect mirroring, as described by Gergely and Watson (1999), proposes that infant representations of their emotional states are derived from external stimuli. That is, babies begin to differentiate their emotional states and accompanying physiological sensations by observing what their parents mirror facially or vocally in response. This social biofeedback assists the infant in developing a second order symbolic representational system for organising their affective and mental states (Gergely & Watson, 1999). For example, the distressed infant will internalise his caregiver’s empathic concern by developing “a secondary representation of his emotional state, with the mother’s empathic face as the signifier and his own emotional arousal as the signified” (Fonagy, 2004, p. 23). The expression of the caregiver moderates affect in such a way that it is different and separate from the primary experience. Importantly, it is not seen by the infant as the caregiver’s experience, but rather, as an organiser of a self-state. This inter-subjectivity is described by Fonagy (2004) as “the bedrock of intimate connection between attachment and self-regulation” (p. 23) as it provides the foundations of a symbolic system from which the capacity for self-regulation can develop.

It is crucial that the infant understands that what they are experiencing is a reflection of their feelings, as opposed to the feelings of their caregiver, particularly where negative affects are concerned. Gergely & Watson (1999) propose that the potential for misattribution of affective states is reduced as a result of a process called “marking” whereby caregivers present a somewhat exaggerated version of the emotional expression (e.g. as might happen in pretend play). However, problems arise when caregivers find it difficult to mirror their child’s emotions in this marked way, usually as a result of their own emotional difficulties (Fonagy, 2004). In such circumstances, the parent may reflect the emotion accurately, meaning that it will be experienced as their real affective state. This can in turn lead to traumatisation rather than containment as the infant’s affect is not regulated, and their distress may in fact escalate in response to perceived parental distress (Fonagy, 2004).

However, following repeated parent-child interactions that involve appropriately marked affect-mirroring, it is thought that infants come to associate the positive changes in their emotions with the control they have over this process. This in turn, leads to a sense of self as having the ability to self-regulate (Gergely & Watson, 1999). The basis for affect regulation and impulse control is established through second order representations of emotions, which in turn, provide the foundations for later development of the capacity to mentalise (Fonagy, 2004).

Consequently, the literature would suggest that secure attachment relationships in infancy can serve as protective against violence and anti-sociality throughout the life span. This is because secure attachment, as outlined above, facilitates the development of the ability to regulate emotions and impulses (Fonagy, 2004). Furthermore, secure attachment also facilitates the development of pro-social values, empathy and morality (Levy & Orlans, 2000); all of which relate to the ability to mentalise and theory of mind.

The capacity to mentalise determines an individual’s ability to understand their own mental states and the mental states of others, whilst having an understanding of the fact that the beliefs, desires and intentions of others might be different from one’s own (Fonagy, 2004). The development of the capacity to mentalise is thought to be influenced by the nature of the individual’s attachment experiences, with adverse experiences leading to deficits in this area (Fonagy, 2004). Indeed, empirical evidence would support this notion as it has been demonstrated that insecurely attached children have poorer mentalising abilities than securely attached controls (Fonagy *et al.*, 1991; Fonagy *et al.*, 1997). It is thought that these deficits arise because insecure infants, who are often victims of trauma and abuse at the hands of their caregivers, are unable to consider the mental states of their caregivers as doing so would require consideration of their attachment figure’s wish to harm them (Fonagy, 1999). Even though their attachment systems are regularly activated due to a lack of safety, the caregiver’s abusive behaviour inhibits the development of a mentalising stance (Fonagy, 2004). That is, as the child is faced with conflicting needs for comfort and a desire to escape from further harm, they often accept physical care (if available) but retain mental distance as a defence (Fonagy, 1999). Whilst this may be adaptive in the short term, if such a strategy is used repeatedly, the development of the capacity to represent the mental states of themselves and others will become disrupted (Fonagy, 2004).

Within the developmental literature, mentalisation is referred to as the development of “Theory of Mind” (ToM; Baron-Cohen *et al.*, 2000). Whilst mentalisation and ToM overlap conceptually in relation to the abilities described, the theories differ with respect to aetiology in that mentalisation acknowledges the influence of attachment and the child’s social and emotional context on the development of the ability to infer mental states (Fonagy, 2004). Models of ToM, on the other hand, view the child “...as an isolated processor of information, constructing a theory of mind using biological mechanisms which, where the child’s endowment is less than optimal, have an expectable failure rate” (Bateman & Fonagy, 2004, p. 72). Consequently, the impact of the attachment relationship on the child’s developing capacity to understand their social and emotional world is ignored. However, as both theories relate to the ability to infer mental states, and the fact that ToM has been studied more extensively to date in relation to psychopathology and aggression, both remain useful in considering the relationship between attachment and violence.

The literature would therefore suggest that attachment experiences in the social context as described above are inextricably linked with an individual’s emotional development, capacity to self-regulate, and mentalising abilities. However, the emerging literature concerning the relationship between attachment and brain development would suggest that it is crucial to consider the biological consequences of attachment experiences as well as the social; thus providing rich evidence for a true biopsychosocial theory as originally conceptualised by Bowlby (1969).

### ***Attachment & Brain Development***

Consideration of how attachment relates to brain development has arisen from a strand of more recent research that is complementary to the biopsychosocial theories described above. A link between neurobiology and the infant’s emotional and social environment has now been firmly established (Balbernie, 2001). Studies suggest that central organising processes within the brain are cultivated by emotion (Seigal, 1999) in that the brain develops in a “use dependent” fashion (Perry, 1999). That is, the infant whose parents adequately mirror their affects will “build in” corresponding neural systems in specific areas of the brain, just as the child whose parents teach them to ride a bike will “build in” the motor-vestibular neural systems that mediate this behaviour (Perry, 1999).

The right hemisphere of the brain is largely responsible for functioning related to attachment experiences and emotion (Cozolino, 2006). That is, right hemispheric biases have been observed with respect to bonding and affiliation (Stuss & Alexander, 1999), high levels of emotional arousal (Lane & Jennings, 1995), negative affect (Borod *et al.*, 1986), and the ability to understand facial expressions and recognise emotions in others (Dimberg & Petterson, 2000). In terms of region specificity, the area of the brain most associated with attachment and emotional functioning is the prefrontal cortex, as this links the emotional and survival-orientated subcortex with the sensory areas of the cortex, thus giving us the capacity to think and reflect on our emotions (Gerhardt, 2004). The orbitofrontal cortex is the first part of the prefrontal cortex to mature (and is larger in the right hemisphere), thus playing a crucial role in our emotional lives (Cozolino, 2006). Studies of those with impairments in this region indicate that they lack awareness of social and emotional cues (Gerhardt, 2004), and experience difficulties with affect regulation (Luria, 1980). A developed orbitofrontal cortex is required in order to be able to

empathise with others and to infer their states of mind (Gerhardt, 2004). It has therefore been suggested that the orbitofrontal cortex along with the anterior cingulate and other parts of the prefrontal cortex are the brain regions responsible for what Goleman (1996) refers to as “emotional intelligence”, defined in the simplest terms as the ability to identify and manage emotions in oneself and others.

Unfortunately, the development of the orbitofrontal cortex is not automatic. It is both experience and use dependent, meaning that quality of social interactions and attachment security influence the degree and progress of development (Schoore, 2002). It is thought that there is an evolutionary function in this plasticity, as it allows each human baby to develop in a way that fits best with the culture and environment in which they are raised (Gerhardt, 2004). However, this also means that the effects of toxic attachment relationships (e.g. sexual abuse by a parent) can go far beyond psychological and physical damage, as both brain chemistry and structure can be fundamentally altered as a result (Rick & Douglas, 2007).

In the context of a secure attachment relationship, the capacity to regulate frustration, impulsivity and aggressive behaviour develops with age due to the cortically-mediated inhibitory mechanisms which moderate the responses of more primitive brain regions (Perry, 1999). However, evidence suggests that in the context of insecure attachment and childhood trauma, these normal neuro-developmental processes become disrupted (Schoore, 2002). Adversity in attachment relationships with caregivers (e.g. neglect, abuse) activates a set of threat responses in the infant’s developing brain (Perry, 1999). If such trauma is repeated or prolonged, this will lead to excess activation of the neural systems involved in the threat response which in turn leads to structural alterations in the brain that may manifest as changes in emotional, cognitive and behavioural functioning (Perry, 1999).

There is a suggestion that the clinical presentation of the child (and later the adult) will vary according to the coping responses adapted in the face of repeated trauma (i.e. dissociation, hyperarousal, or a combination of both). For example, the homeostasis of the systems modulating the dissociative response can become disrupted in response to trauma, and if the child remains in a dissociative state for a sufficient length of time, the compensatory mechanisms can become over-activated or fatigued, thus reducing the likelihood of return to a healthy equilibrium (Perry, 1999). Such individuals may present with dissociative related symptoms (e.g. anxiety, helplessness, dependence, mood disorders, etc) and are likely to be considered anxious in their attachment style (Perry & Pollard, 1998). When a child has a tendency to adopt a hyperarousal response in the face of trauma, disruption to homeostasis occurs in a different set of neurochemical systems. Such individuals may present with persistent hyperarousal and associated clinical problems (e.g. attention deficit hyperactivity disorder (ADHD), conduct disorder) and are more likely to be considered avoidant in their attachment style (Perry, 1999).

### ***Attachment in Adulthood***

Bowlby’s (1969) theory of attachment was originally conceptualised to explain the evolutionary function of infant-caregiver bonds. However, the theory has since been expanded, and it is now widely accepted that the attachment system is active throughout the human life span (Cassidy & Shaver, 1999).

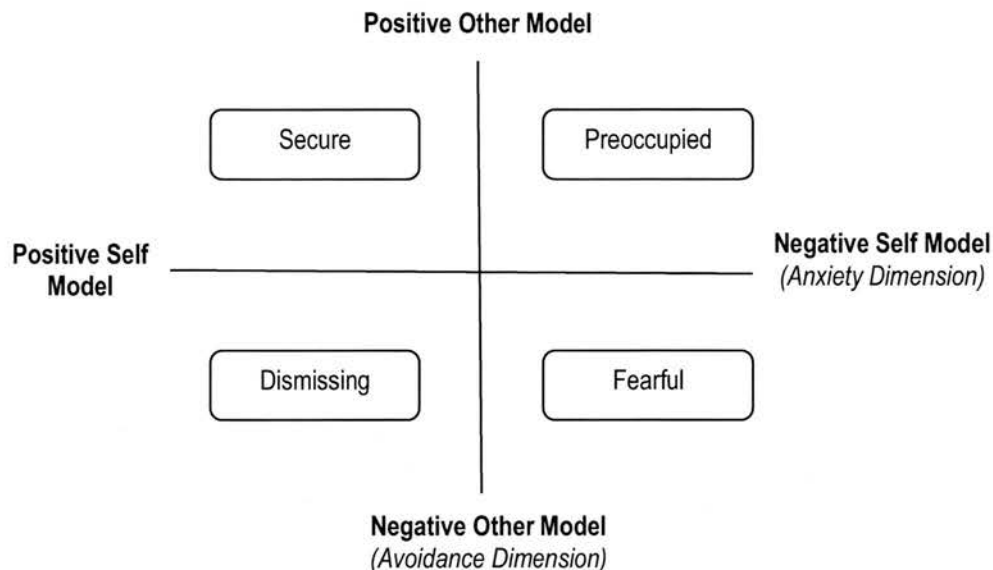
In adulthood, close relationships between individuals (e.g. intimate partners) can take on the quality of attachment relationships in that they can provide a sense of security and belonging (Ainsworth, 1991). However, as the individual goes through different life stages, the strategies that maintain attachments will change. For example, in infancy, physical proximity to caregivers is important whereas this is much less the case in adulthood, particularly for those who are secure in their attachment style (Cassidy & Shaver, 1999). That said, the interpersonal style of the adult and their corresponding attachment strategies will continue to be influenced by the internal working models developed in childhood, meaning that the securely attached adult will regard themselves as deserving of attachment and others as being able to meet their needs, whereas the opposite is likely to be true for those considered insecurely attached (Ma, 2006).

There is a sizeable literature concerned solely with the measurement of attachment in adulthood, partly due to the emergence of two distinct traditions (Bartholomew & Shaver, 1998). These two largely independent schools of thought are based on different assessments and conceptualisations of adult attachment (Cassidy & Shaver, 1999). As described above, Ainsworth *et al.* (1978) began the first line of research by introducing the strange-situation procedure to assess attachment in childhood. This was later expanded upon with the introduction of the AAI (George *et al.*, 1985), an interview method designed to assess an adult's state of mind with regards to their childhood experiences of attachment relationships (Shaver *et al.*, 2000). The AAI assessment process involves discussing emotionally laden attachment related experiences whilst a trained rater codes the individual's discourse in terms of coherence (Hesse, 1999). The individual being interviewed is assigned one of four adult attachment categories (i.e. secure/autonomous, dismissing, preoccupied, unresolved/disorganised) that are conceptually comparable to the infant categories in the infant strange situation procedure.

The AAI is often referred to as the "gold standard" in the measurement of adult attachment (Waters, 2002), partly due to the high convergent validity between parental AAI classifications and infant strange situation classifications (van Ijzendoorn, 1995), and the clinical utility of the information gained during the interview. However, in order to be able to use the AAI, extensive training is required, and the procedure itself takes several hours of transcription and coding (Ma, 2006). Unfortunately this means that it is not particularly accessible to the average clinician. It can also be difficult to utilise for research purposes as a great deal of resources are required due to the fact that it is essentially a qualitative process with a quantitative (i.e. categorical) outcome.

The second tradition began in the mid 1980s when Hazan & Shaver (1987) applied attachment theory to romantic relationships on the premise that the strategies employed in such partnerships would be derived from childhood attachment experiences. The dominant form of measurement employed by this tradition is that of self-report questionnaires, a methodology that has been criticised at times for its "...theoretically) limited ability to tap into unconscious attachment strategies and...vulnerability to defensive reporting" (Ma, 2006, pp. 442-443). However, it can be counter-argued that conscious and unconscious processes often function simultaneously in order to obtain the same goal, and that most adults have the ability to describe their behaviour in close relationships on the basis of reflections on their behaviour within them (Bartholomew & Shaver, 1998). Due to ease of administration and scoring, self-report measures of attachment are accessible to interested clinicians and widely used in research.

The four category model of adult attachment devised by Bartholomew and Horowitz (1991) on the basis of self-report outcomes is well validated and frequently used in research concerning adult psychopathology and offending. The model (as shown in Figure 1) conceptualises attachment across two dimensions of anxiety and avoidance. Four prototypic attachment styles can then be defined in relation to the intersection of the two underlying dimensions (i.e. in terms of the individual's working models of the self and others).



**Figure 1 - Four Category Model of Adult Attachment**

The self and other models relate to broad “expectations about the worthiness of the self and the availability of others” (Griffin & Bartholomew, 1994, p. 431). The anxiety/avoidance dimension predicts patterns of intimacy and independence (Brennan & Shaver, 1995). Attachment anxiety often leads to difficulties with independence that can hinder intimacy due to fears of abandonment, excessive dependency, affect dysregulation, displaced aggression, impulsivity, and depression (Alexander & Anderson, 1994; Bartholomew, 1990; Bartholomew & Horowitz, 1991; Biringen, 1994; Mikulincer, 1998). Attachment avoidance, on the other hand, can lead to difficulties with intimacy due to excessive independence, a fear of closeness, restricted emotional awareness and blunting of affect, defensiveness, and rage (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Fuendeling, 1998; Mikulincer & Orbach, 1995).

The four attachment categories are indicative of prototypic strategies for regulating felt security in close relationships (Griffin & Bartholomew, 1994). A distinct pattern of interpersonal behaviour and style of emotion regulation characterises each category (Ma, 2006). For example, secure individuals (positive self and other models, low anxiety and low avoidance) have an adequate sense of self worth and can find the balance between intimacy and independence (Bartholomew & Horowitz, 1991). In contrast, fearful individuals (negative self and other models, high anxiety and high avoidance) are highly dependent on others in an attempt to validate their self-worth, but tend to shy away from intimacy in an attempt to avoid the rejection expected on the basis of their negative model of others (Bartholomew & Horowitz, 1991). Dismissing individuals (positive self and negative models, low anxiety and high

avoidance) also avoid intimacy because of their negative other model, but retain their high self-worth by over-valuing independence and denying the value of relationships (Bartholomew & Horowitz, 1991). Finally, preoccupied individuals (negative self and positive other models, high anxiety and low avoidance) seek excessive closeness and idealise others as a result of their positive other model, but are often rejected and experience extreme distress when the attachment figure is unable to fulfil their intimacy needs (Griffin & Bartholomew, 1994). These four attachment styles can be assessed using a range of self-report measures (Ma, 2006).

There is much debate in the literature as to whether attachment should be measured in categorical or dimensional terms. Crittenden (2000) asserts that it is inaccurate to consider attachment as a categorical phenomenon as attachment behaviours are complex and variable by degree, and thus can be better understood dimensionally. Brennan *et al.* (1998) share the same view, suggesting that categorical models have become commonplace merely as a result of convenience. Categorical models have also been criticised as they apply a label to a person (e.g. Mr X is dismissing in his attachment style) that is seen as all encompassing in that this classification is thought to apply in all circumstances and to all attachment figures (Crittenden, 2000). Dimensional models, on the other hand, allow for variance in attachment across time and context, thus an individual would be described as more or less secure at the time of assessment as opposed to “secure” or “insecure” (Rich, 2006). However, despite support for dimensional models, categorical measures are still used routinely, and are often considered best practice as is the case with the AAI, for example. Waters and Beauchaine (2003) argue that it makes no difference whether a categorical or dimensional classification system is used as the underlying principles of attachment theory are sound, and as such, it is at the discretion of the clinician or researcher as to how they wish to assess attachment.

### ***Disrupted Attachments, Violence, & Criminality***

Violence can be understood as a failure of normal development in that “...biological predisposition and social influence do not create destructiveness, but rather compromise the social processes that normally regulate and tame it” (Fonagy, 2003, p. 190). It should be noted that this is contradictory to what has long been one of the primary explanatory models of violence, that is, that aggression is learned in response to frustration and through observing others model such behaviour, and that the use of aggression is reinforced through the achievement of goals (Tremblay, 2008). However, a number of longitudinal studies would support the notion that violence is unlearned rather than learned as the data suggest that physical aggression peaks between the ages of two and three and steadily decreases thereafter for the vast majority of individuals (Coté *et al.*, 2006; Liben & Bigler, 2002, Tremblay *et al.*, 2004). The minority who continue to be physically aggressive beyond childhood tend to come from dysfunctional families (Tremblay *et al.*, 2004). Consequently, Fonagy (2003) proposes that violence is unlearned as part of normal development in that secure attachment experiences facilitate the development of control over innate aggressiveness. However, where the home environment is dysfunctional and the child is unable to form secure attachment bonds, the process of unlearning violence becomes disrupted.

Support for this hypothesis comes from a study by Gilliom *et al.* (2002) in which children's capacity to regulate anger in a frustration task was examined. Attachment was assessed at the age of 18 months in a sample of 310 boys, and they were followed up until the age of 6 when performance on the frustration task was assessed. Children who were assessed as securely attached at 18 months were found to be more likely to seek support and to disengage from the task as opposed to expressing inappropriate levels of anger than those who were assessed as being insecure. Furthermore, studies of children experiencing attachment difficulties have found them to be significantly more disruptive, aggressive and antisocial (Levy & Orlans, 2000). For example, Lyons-Ruth *et al.* (1993) found that insecurely attached infants were six times more likely to display behaviours considered hostile and aggressive towards their peers than secure controls. This pattern has also been observed in adult samples as Fossati *et al.* (2009) found a relationship between insecure attachment and impulsive aggression in their recent empirical study. Furthermore, Critchfield *et al.* (2008) found an association between high levels of attachment anxiety and avoidance and multiple forms of aggressive behaviour (e.g. verbal assault, physical assault, and self harm) in a sample of participants with borderline personality disorder. The empirical relationship between attachment and violence in adult samples will be reviewed in depth in the meta-analysis presented in Chapter 2.

These findings would suggest that insecure attachment could be a risk factor for violence as it may disrupt the normal developmental trajectory whereby physical aggression declines following the age of two. However, the attachment system may play an additional role in leading to aggressive behaviour in the case of violence towards attachment figures. Indeed, victims of violence are disproportionately likely to be members of the perpetrator's attachment network (Adshead, 2004). As Meloy (2003) states with respect to attachment "...proximity seeking toward another and acute distress when...separated...appear to be the most fertile territory for physical combat" (p. 509). However, the fact that attachment relationships are emotionally charged serves an evolutionary function. That is, just as joy experienced through bonding is adaptive as it reinforces the need for intimate connection with others, anger within the context of an attachment relationship can also be functional and adaptive if expressed to an appropriate degree (Bowlby, 1969). Consider as an example a mother who becomes angry with her child for stepping out to cross the road without looking first. The angry response displayed by the mother in this context could be considered functional as it may deter the child from behaving similarly in the future. When relationships with attachment figures become endangered we often feel both anger and anxiety in response to the threat of loss; the primary function of anger being the protection of the relationship of value (Bowlby, 1984).

However, displays of anger within attachment relationships become problematic when they lead to aggression. Indeed, there is some suggestion that violence perpetrated within the context of attachment relationships occurs as a result of distorted and exaggerated versions of normal attachment behaviour (i.e. anger in response to the threat of loss) (Bowlby, 1984). However, anger is neither a necessary nor sufficient pre-requisite for violent behaviour. Indeed, two distinct categories of violence have been defined in the literature; that which could be considered instrumental (i.e. planned and emotionless with low autonomic arousal), and that which could be considered reactive (i.e. impulsive and affect driven

with high autonomic arousal) (Meloy, 2003). Anger and violence in the context of attachment relationships can be understood (at least in part) as an exaggeration of an adaptive response to the threat of loss, but there are clear descriptions of violence towards attachment figures that would be considered instrumental as opposed to reactive, so how can attachment theory explain this? It is possible that Bowlby's (1969) third stage of loss holds the answer.

Bowlby (1969) identified three psychological states associated with separation from attachment figures in his work with infants: protest (characterised by acute distress), despair (characterised by preoccupation, withdrawal, and hopelessness), and detachment. Detachment is thought to occur following a prolonged separation, and signifies a supposed recovery from protest and despair (Bowlby, 1969). However, when the attachment figure returns there is no resumption of normal attachment behaviour; rather, the infant is apathetic and becomes increasingly self-absorbed (Fonagy *et al.*, 1997).

In considering reactive violence in the context of attachment relationships, it is possible that such actions are associated with the stages of either protest or despair, as both stages represent strong emotional reactions to the threat of loss or separation. With respect to instrumental violence, it is possible that this arises following detachment. Bowlby first described the "affectionless character" in 1944, a form of personality pathology believed to arise as a result of the interaction between detachment from the primary attachment figure (i.e. in the face of childhood trauma or loss) and a certain biological predisposition. He defined the affectionless individual as being characterised by a "...lack of normal affection, shame or sense of responsibility" (Bowlby, 1944, p. 24). This description is not unlike that of some of the core characteristics of psychopathy as defined by Hare (1991), namely, an individual who is egocentric, callous, lacking in empathy, shallow in affect, and engages in antisocial behaviour with little or no remorse for their actions. Indeed, it is generally accepted that violence perpetrated by individuals with psychopathic traits is often planned, purposeful, and seemingly affectionless (i.e. it is instrumental in nature) (Fonagy *et al.*, 1997). Reactive violence, on the other hand, involves high levels of affect and is thought to occur in the context of perceived threat (Meloy, 2003). It has been suggested that both instrumental and reactive forms of violence involve the attachment system where in the case of instrumental violence "...the individual seeks the object, and the purpose of such proximity seeking is primarily destructive...[whereas in the case of reactive violence]...proximity triggers an intense reaction of a violent kind" (Fonagy *et al.*, 1997, p. 153). Bowlby (1944) therefore suggested that both violence and criminal behaviour more generally can be explained in terms of disorders of the attachment system. He concluded that anti-social behaviour is justifiable for some due to a lack of concern for others, egocentricity, and deficient affective experience (i.e. those considered "affectionless"), and that for others it occurs as a result of poor affective controls and a tendency to act impulsively.

Whilst these ideas are promising and intuitive, there is a difficulty with classifying individuals as being either instrumental or reactive in their violence due to underlying attachment difficulties. Indeed, Fonagy *et al.* (1997) consider the term affectionless to be "unfortunate" (p. 153) as individuals who demonstrate this sort of character and/or psychopathic traits often commit violent acts that would be considered reactive in nature. Furthermore, it is now generally accepted that the instrumental/reactive

dichotomy oversimplifies human aggression, as a single act of violence could be viewed as “mixed” in that it contains both instrumental and reactive elements (Weinshenker & Siegel, 2002). What may be crucial then, rather than the type of violence, is the lack of concern for others and problems with affect that arise following adverse attachment experiences; characteristics that may increase an individual’s propensity towards violence or crime of any description.

### ***Affect Dysregulation, Brain Development, & Violence***

The ability to successfully regulate affect involves reciprocal interactions between the biological, behavioural, and cognitive domains of the emotional response system (Dankoski *et al.*, 2006). Childhood trauma and disrupted attachments can lead to problems across all three domains. For example, within the cognitive domain, negative internal working models can develop (e.g. “I am bad and unlovable”, “others are neglecting and abusive”) (Levy & Orlans, 2000). In addition, when a child’s distress signals are neglected or elicit an abusive response, their negative emotional state can become exacerbated and prolonged in the absence of containment and appropriate affect mirroring (Izard & Kobak, 1991). Prolonged negative emotional states can lead to biochemical alterations in the brain, particularly in the areas associated with coping (Schoore, 1996). In such instances where attachment experiences are repeatedly adverse, emotion dysregulation develops with tendencies towards internalising (i.e. problems within the self; e.g. depression, worry, etc), externalising (i.e. behaviours directed outwards; e.g. tantrums, aggression, etc), or a combination of both (Dankoski *et al.*, 2006). Studies of conduct disordered adolescents report high levels of affect dysregulation with both internalising and externalising problems evident (e.g. Armistead *et al.*, 1992).

The internalising and externalising behaviours displayed as a result of affect dysregulation are thought to be consequents of biochemical and neurological alterations in the brain following damaging attachment experiences (Schoore, 2001). That is, the development of the orbitofrontal cortex and right hemispheric functioning can be adversely affected when the infant is subject to repeated or severe relational trauma in childhood (Schoore, 2001). Whilst neuropsychobiological research in this area is still in its early stages, promising clinical, theoretical, and research links have been made between right hemispheric dysfunction and reactive attachment disorders (Hinshaw-Fuselier *et al.*, 1999), as well as various forms of psychopathology, including personality disorders (Horton, 1985). Individuals with right hemispheric dysfunction, when faced with relatively low intensity triggers, experience disproportionately high levels of negative affect (Shore, 2001). They also find it very difficult to cease these affective responses once started, and are consequently prone to “hair-trigger” reactions (Wheeler *et al.*, 1993). Studies of young children with both internalising and externalising difficulties report higher levels of right hemispheric electroencephalogram (EEG) activation (Schoore, 2001). Furthermore, in later years, right hemispheric dysfunction is associated with enduring difficulties in affect regulation (Persinger & Makarec, 1991).

Right hemispheric dysfunction has also been observed in violent individuals. For example, a neuroimaging study of males convicted of murder conducted by Raine *et al.* (1998a) found evidence of impairments in right orbitofrontal functioning, leading the authors to suggest that such deficits may be indicative of predisposition to violence. Furthermore, Volavka (1999) found that murderers whose

crimes were considered to be reactive displayed prefrontal cortical dysfunction on positron emission tomography (PET) scans. However, the same pattern was not evident in participants whose murders were classified as instrumental. The authors therefore concluded that “prefrontal cortical functioning that controls aggressive behaviour was impaired specifically in persons who exhibit[ed] impulsive (but not premeditated) violence” (Volavka, 1999, p. 311). A further study by Raine *et al.* (1998b) replicated the findings of Volavka in that they found reactive murderers to have lower prefrontal activity and higher subcortical activity when compared with controls, and they also observed that murderers considered to be instrumental in their offending did not differ significantly from controls in terms of prefrontal activity. However, in this study, excessive subcortical activity was observed in the instrumental offender group also. The high levels of subcortical activity were restricted to the right hemisphere in both offender groups, but were not evident in controls. The authors concluded:

*“Excessive subcortical activity could be a contributing factor towards a more aggressive temperament which is common to both types of violent offender... However ...affective [reactive] and predatory [instrumental] offenders differ in terms of the regulatory cortical control they exert over such impulses. While predatory violent offenders have sufficient... functioning to modulate aggressive behaviour to... achieve desired goals, affectively violent offenders lack this prefrontal modulatory control over their impulses, resulting in more...dysregulated...outbursts”* (Raine *et al.*, 1998b, p. 329).

Abnormalities in neurological functioning have also been observed in sexual offenders (see Ward & Beech, 2006, for a review) and domestically violent men (Dutton, 2002). Consequently, it would seem that reactive violence may be, at least in part, a consequence of affect dysregulation due to abnormalities in prefrontal cortical functioning. In the case of those whose violence is considered instrumental, it seems that prefrontal cortical functioning remains intact, but that excess subcortical activity may be implicated. However, the mechanism whereby increased subcortical activity increases violence risk remains unclear. Some studies implicate abnormalities in the amygdala, the brain region concerned with identifying negative emotions in others, particularly fear (e.g. Blair, 2001). Other studies have suggested disrupted functional connectivity of the brain regions responsible for emotional processing (e.g. Müller *et al.*, 2003). It therefore seems that there is still much work to be done in this promising area, particularly as the literature has not yet considered the neuropsychobiology of individuals who perpetrate acts of violence that could be considered both reactive and instrumental, a phenomenon frequently observed in clinical practice.

### ***Disrupted Attachments, Failure to Mentalise & Violence***

The inability to appreciate and understand others' mental states may result in interpersonal problems and increase the propensity for violent behaviour, as the perpetrator essentially views their victim as “devoid of thoughts, feelings and the capacity for real suffering” (Fonagy & Target, 1999, p. 54), essentially treating them like physical objects. Moral disengagement in the context of failure to mentalise can also lead to violence as individuals with an under-developed sense of self tend to lack a sense of agency (Fonagy, 1999). Consequently they are unlikely to feel responsible for their actions and will thus justify and rationalise unacceptable behaviour.

In terms of empirical validation in adult samples there have been few studies to date, but the results are promising. For example, Fossati *et al.* (2009) observed a relationship between insecure attachment and impulsive aggression in a large community sample. They also found deficits in mentalising ability to be a significant mediating variable between insecure attachment and aggression. Further support for the relationship between insecure attachment, deficits in mentalisation, and violence was found by Levinson and Fonagy (2004) in their study of violent mentally disordered offenders. They observed that mentally disordered offenders were more likely to be classified as insecure in their attachment using the AAI as compared with both normal and psychiatric controls. Furthermore, they found that the offending group had the most pronounced mentalising deficits, and also observed an inverse relationship between mentalisation ability and severity of violence.

Levinson and Fonagy's (2004) study is the only one to date which examines mentalisation in violent offenders. However, there are others which consider ToM in offenders and produce mixed results. For example, Murphy (1998) examined ToM in two sub-groups of violent men with diagnoses of schizophrenia and personality disorder. Results indicated that those with schizophrenia were more impaired than those with a personality disorder diagnosis. Consequently these findings would not support a simple relationship between ToM deficits and violence as the personality disordered group had committed equivalent offences to those in the schizophrenia group, but performed significantly better on the ToM assessments.

A further study by Abu-Akel and Abushua'leh (2004) examined ToM and empathy in 24 men with schizophrenia who were classified as either violent or non-violent. Results indicated that the violent sub-group had empathy deficits when compared with the non-violent group, but that they performed significantly better on assessments of ToM. Logistic regression analyses indicated that poor empathic inferencing and good mentalising abilities (as determined by ToM assessments) were predictive of violent offending. The authors therefore conclude support for the empathy deficit offending hypothesis, but suggest that greater mentalising abilities increase propensity for violent behaviour due to the potential such abilities could afford in terms of deceiving and manipulating victims. However, the nature of violence perpetrated by the violent group was not described, nor was psychopathy or personality disorder taken into account. The sample size was also very small (particularly for use in regression analyses), and a normal control group was not included. These findings should therefore be interpreted with caution until replication with a larger sample is achieved.

### ***Summary***

Theoretical links between disrupted attachments, brain development, affect dysregulation, mentalisation and violence have been discussed. It seems that insecure attachment and its sequelae may represent significant risk factors for both violence towards individuals within the perpetrator's attachment network (e.g. through inappropriate anger in response to the threat of loss) and criminality more generally (e.g. as a result of inadequate mentalisation and an over focus on self-serving goals). The question as to whether this is supported by the empirical literature will be addressed in part by the meta-analysis in Chapter 2, and in part by the present empirical study introduced in Chapter 3.

## **Chapter 2 – Attachment & Violence: A Meta-Analysis**

### **Introduction**

Whilst the theoretical links between insecure attachment, emotional difficulties and offending described in Chapter 1 are intuitive and promising, there has yet to be a systematic review of the literature to determine whether these relationships are empirically supported. Furthermore, the prevalence of insecure attachment is surprisingly common in the general population (i.e. approximately 40% would be considered insecure in their attachment orientation) in comparison with offending which is relatively rare (van Ijzendoorn, 1995). Consequently, insecure attachment in isolation does not provide an adequate model of offending, as the majority of those who would be classified as insecure in their attachments do not go on to behave violently or break the law. Levinson and Fonagy (2004) hypothesised that deficits in the ability to mentalise may mediate the relationship between insecure attachment and offending and found some support for this. However, the relationship between insecure attachment and offending in and of itself must be understood before the influence of mediating variables is considered. This chapter will therefore aim to address the question of whether attachment insecurity is related to violence using meta-analytic methods.

### **Aims**

The primary aim of the review was to synthesise the data available on attachment in offending populations in order to consider the relationship between attachment insecurity and violence. A clear understanding of how attachment relates to violence is crucial as this will assist in the development of therapeutic interventions for violent offenders. Furthermore, if attachment were found to be related to violence across studies and offending populations, this information would be of relevance to violence risk formulation, which would in turn contribute to the management of offenders; a task with the overall aim of reducing violent recidivism (Webster & Hucker, 2007).

In addition to synthesising the existing literature, the meta-analysis also examined whether insecure attachment was related to mental health problems, criminality, or both, as there is conflicting evidence across studies. For example, van Ijzendoorn *et al.* (1997) in their study of attachment of 40 personality disordered offenders concluded that "...insecure attachment may be a general mental health risk factor, rather than a specific determinant of severe criminal behaviour" (pp. 456). However, this conclusion has now been brought into question by studies such as that by Baker and Beech (2004), who found high rates of attachment insecurity in non-mentally disordered offenders. Consequently, one of the aims of this review was to begin to investigate these issues in a systematic manner. Thus, in addition to considering whether offenders were more insecure in their attachments than normal controls, differences between offending populations were explored in more detail and recommendations for further research made.

## **Meta-Analytic Research Questions**

### ***Main Research Question***

1. Are offenders more insecure in their attachments than non-offending controls across studies?

### ***Subsidiary Research Questions***

2. Do mentally disordered offenders differ from non-offending mental health populations in terms of attachment security?
3. Do mentally disordered offenders differ from non-mentally disordered offenders in terms of attachment security?
4. Are there differences in attachment security between violent and non-violent offenders?
5. Does attachment vary according to offence type (e.g. sexual offences, violent offences)?

## **Method**

### ***Search Strategy***

A comprehensive search was conducted using the following procedures:

#### **Electronic Database Searches**

A computerised search of the following databases was carried out in December 2008: OVID, PsychInfo (1806–2008), MedLine (1950–2008), EMBASE (1980–2008), and CINAHL (1981–2008). The keyword attachment was systematically combined with the following terms relating to offenders: offen\*, psychopath\*, personality disorder\*, prison\*, remand\*, crim\*, detention, convict\*, secure hospital, correctional facilit\*, court\*, detain\*, inmate\*, probation\*, sentenced, violen\*, aggressi\*, batter\*, stalk\*, and spousal assault.

#### **Journals**

Hand searches of the following journals were carried out: British Journal of Clinical Psychology (2001–2008), Clinical Psychology Review (1990–2008), Journal of Clinical Psychology (1989–2008), British Journal of Developmental Psychology (2001–2008), Clinical Psychology & Psychotherapy (1993–2008), Developmental Psychology (1980–2008), Journal of Applied Developmental Psychology (1980–2008), Journal of Consulting & Clinical Psychology (1982–2008), Journal of Forensic Psychiatry and Psychology (2003–2008), Psychiatry, Psychology & Law (2003–2008), Journal of Interpersonal Violence (1986–2008), Attachment & Human Development (2000–2008), Aggressive Behaviour (1974–2008), Violence & Victims (2005–2008), The American Journal of Forensic Psychology (1983–2008), Law & Human Behaviour (2005–2008), and Sexual Abuse: A Journal of Research & Treatment (1989–2008).

#### **Unpublished Studies/Grey Literature**

The keywords were used to search Dissertation Abstracts International, as well as OpenSIGLE and the Health Management Information Consortium (HMIC) (i.e. both grey literature databases) in an attempt to find unpublished studies and thus minimise the effects of publication bias.

### Other Sources

Relevant conference proceedings were examined (i.e. those from the International Association of Forensic Mental Health Services (IAFMHS), the British Psychological Society (BPS) (including the Division of Forensic Psychology (DFP) and Division of Clinical Psychology (DCP)), the Scottish Personality Disorder Network (SPDN), and the Risk Management Authority (RMA)). In addition, members of the IAFMHS were contacted in order to identify any further potential unpublished studies. Finally, relevant professional/association websites (i.e. IAFMHS, BPS (including DFP and DCP), SPDN, and RMA) and others (i.e. National Institute of Justice US, The Scottish Government, and the Home Office Website) were also searched using the keywords.

### Cross-referencing of Bibliographies

Key texts in the area and studies considered eligible for inclusion following the initial search and screening were scanned for citations to other potentially eligible studies. Citation searches relating to studies selected following initial screening were also carried out.

### ***Criteria for Including Studies in the Review***

Candidate papers obtained following the initial search above were subject to a preliminary screening process. This involved scanning the abstract and excluding papers not meeting the inclusion criteria outlined below (see Appendix 1 for screening checklist). Candidate papers which appeared to meet the inclusion criteria following initial screening were then obtained in full and screened once again using the same criteria. Those papers meeting all of the inclusion criteria were included in the review.

### Inclusion Criteria:

- Quantitative study with the exclusion of single *N* designs;
- Both published and unpublished studies;
- Study employed a validated measure of adult attachment;
- Sample included those who had official or reported criminal offences as opposed to lower level antisocial behaviours (e.g. as determined via self-report aggression questionnaires);
- Where mentally disordered offenders were concerned, diagnoses conformed to an official nosological system or were derived from a standardised diagnostic assessment tool;
- Sample involved adult male participants;
- Conducted in any country providing the findings were published in English;
- Not duplicate publication/data from same sample published elsewhere (if a study was listed in dissertation abstracts and later published, the published paper was included);
- Data allowed for effect size calculation.

Female and juvenile samples were excluded due to resource limitations and the fact that adult male samples were of most relevance to the present empirical study (see Chapter 3). Furthermore, to be included in the meta-analytic data set, papers had to provide sufficient information to compute effect sizes (e.g. means and standard deviations, test statistics, degrees of freedom, etc). Where this information was not available, efforts were made to contact authors in order to obtain these data.

### ***Quality Assessment***

Published guidelines available for assessing the quality of studies tend to focus on efficacy research and clinical trials (e.g. the Consolidating Standards of Reporting Trials (CONSORT) guidance published by Moher *et al.*, 2001). As the studies included in this review are concerned with associations between variables (i.e. attachment and violence) and/or group comparisons as opposed to treatment efficacy, aspects of methodological quality were inherent to the inclusion/exclusion criteria (e.g. use of a validated measure of attachment) and thus assessed indirectly in this way, as opposed to employing a separate methodological screening process. It was felt that assessment of quality should not be overly rigid as this was the first review in the area, and as such the aim was to maximise eligibility.

### ***Search Results***

The initial search yielded 2280 candidate papers of which the title and abstract were screened using the pre-determined inclusion criteria as outlined above. Following the initial screen, 105 papers remained (74 published papers and 31 unpublished). The 74 published studies were obtained in full and screened again using the same checklist, leaving 26 published papers to be included in the review. Table 1 shows the grounds on which the 48 published papers were excluded following an in-depth screening. The percentages total more than 100% as some papers were excluded on the basis of more than one criterion.

**Table 1 – Percentage of Papers Excluded from the Review According to Criterion**

<b>Exclusion Criteria</b>	<b>Papers Excluded on the Basis of Criterion (%)</b>
1. Study was not quantitative in nature (i.e. qualitative design, literature review, book chapter, theoretical paper) or employed a single N design	4%
2. Did not employ a validated measure of adult attachment (e.g. attachment style determined via clinical judgment or non-specific measure of attachment)	58%
3. Sample did not include those who had committed criminal offences (or reported acts that would be serious enough to warrant legal action)	21%
4. Study used only a psychiatric diagnosis to imply an increased likelihood of offending (e.g. psychopathy)	15%
5. Where mentally disordered offending sample was included, diagnoses did not conform to standardised nosological system or were not derived using a standardised diagnostic assessment	0%
6. Sample involved non-adult male population (e.g. females, juveniles)	2%
7. Published in language other than English	0%
8. Duplicate publication/data from same sample published in another study already included in the review	11%
9. Data did not allow for effect size calculation and information could not be obtained from the author(s)	4%

In relation to unpublished studies, 29 were located via dissertation abstracts and two via the letters sent to IAFMHS members requesting unpublished data. The 29 dissertation abstracts, although seemingly eligible, did not contain sufficient information to calculate effect sizes. There were also some cases where the nature of the sample was clearly suitable but the method of attachment measurement was unclear. Letters were therefore sent to all 29 authors inviting them to provide a summary of their results for inclusion in the meta-analysis. Further clarification around issues relating to eligibility for inclusion was also sought where applicable. The response rate was approximately 20%, and within this proportion, more than half of the replies stated that the author was unreachable. Consequently, the details of only two studies were obtained as a result of the letters distributed to the authors of the dissertation abstracts. One study was found to be ineligible following full screening (excluded in relation to criterion two), and the other was deemed eligible and thus included in the review. The two unpublished papers that were obtained following letters to IAFMHS members were screened and included also, meaning that three unpublished studies were included, along with 26 published papers.

### ***Data Extraction and Analysis***

Data about participants, measures, and outcomes were extracted from the included papers using a standardised data collection form (Appendix 2).

For studies using measures of attachment yielding continuous outcomes, the standardised mean difference (Cohen's  $d$ ) and corresponding 95% confidence intervals were calculated using reported means and standard deviations. The effect size statistic was computed as the difference between the mean of the offender group and the mean of the comparison group, divided by the pooled standard deviation. When means and standard deviations were not reported,  $d$  was calculated on the basis of reported  $t$  or  $F$  values.

For studies using measures of attachment yielding categorical outcomes, Cramer's  $V$  was calculated on the basis of the chi-square statistic comparing the distribution of attachment patterns in the offender group with the distribution of attachment patterns in the comparison group.  $V$  was then converted to  $d$  to allow comparisons across studies.

Once  $d$  was calculated for all group comparisons, Hedges' (1981) formula (see Lipsey & Wilson, 2001, p.49) was applied in order to correct for the upward bias that can occur in effect sizes based on small sample sizes. This involves weighting each effect size by the inverse of its sampling variance. The unbiased weighted mean effect size across studies was then calculated in relation to the relevant hypotheses.

## Results

A total of 29 papers were included in the review (26 published and 3 unpublished), with a total offender *N* of 2620. Table 2 provides a description of each study, the sample characteristics, measures used, and key findings. The following abbreviations are used in Table 2 and throughout the results section: SOs = sexual offenders, VO = violent offenders, DVM = domestically violent men, NVOs = non-violent offenders, PD = personality disorder, & MDOs = mentally disordered offenders. The results are organised into five sections, with each section relating to one research question.

**Table 2 – Descriptive Summary of Papers Included in Meta-Analysis**

Authors, Year	Aims	Sample Characteristics	Relevant Measures	Relevant Findings
<b>Study 1</b> Baker & Beech, 2004	To investigate constructs that may be indicative of disorganised attachment style in sexual and violent offenders (i.e. dissociation and early maladaptive schemas).	Total <i>N</i> =56  3 sub-groups:  20 men in prison for sexual offences against adult women, 15 men in prison for violent offences against adult men, and a community sample of 21 men never convicted of a violent or sexual assault (controls).	<b>Relationship Scales Questionnaire</b> (RSQ; Griffin & Bartholomew, 1994b)  Two factor dimensional scores (anxiety and avoidance) reported.  Differences in attachment anxiety and avoidance are reported across groups at the first point of measurement.	The offending groups did not differ significantly in terms of attachment anxiety or avoidance. The authors therefore propose that insecure attachment may be related to both sexual and violent offending.  However, it should be noted that the difference between the offending groups and normal controls in terms of attachment anxiety and avoidance was in the predicted direction (i.e. offenders showed greater levels of insecurity) but was not statistically significant. The authors suggest that this may be a consequence of small sample sizes and thus insufficient power to detect the predicted medium effect.
<b>Study 2</b> Bogaerts <i>et al.</i> , 2005	To examine differences in adult attachment style, recalled parental bonding and personality disorders in child molesters (with and without personality disorder) and controls.	Total <i>N</i> =164  3 sub-groups:  58 convicted child molesters with PD  26 convicted child molesters without PD  80 matched community controls	<b>Adult Attachment Scale</b> (Hazan & Shaver, 1987)  Three factor dimensional scores (secure, anxious/ambivalent, and avoidant) reported. Higher scores on the secure dimension indicate greater security, whereas higher scores on the anxiety and avoidance dimension indicate greater insecurity (i.e. more anxiety and more avoidance).	The total sample of sexual offenders (i.e. combined sample of PD and no PD groups) differed significantly from controls in terms of attachment only on the secure dimension. The differences on the avoidance and anxiety subscales were not significant, contrary to the author's hypotheses.  Sexual offenders with PD had greater attachment difficulties than the sexual offending group without PD, particularly on the anxiety subscale ( $p<.005$ ).
<b>Study 3</b> Dutton <i>et al.</i> , 1994	To investigate the relationship between insecure attachment and other variables associated with spousal abuse.	Total <i>N</i> =160  2 sub-groups:  120 domestically violent men (court-referred).  40 non-violent controls.	<b>RSQ</b>  Four factor dimensional scores reported (secure, fearful, preoccupied, dismissing). Mean scores on each dimension were reported and compared across groups.	Controls were significantly more secure in their attachment than domestically violent men. Furthermore, domestically violent men were significantly more fearful and preoccupied when compared with controls. However, no significant difference was found with respect to the dismissing dimension.

Authors, Year	Aims	Sample Characteristics	Relevant Measures	Relevant Findings
<p><b>Study 4</b></p> <p>Fischer <i>et al.</i>, 1998</p> <p><i>Unpublished</i></p>	To explore the childhood attachment styles of offenders acquitted due to reasons of insanity.	<p>Total <math>N=25</math></p> <p>25 forensic psychiatric patients (mixed group of sexual, violent and non-violent offenders).</p> <p>Comparison samples of 286 normal males and 291 clinical participants with a range of psychiatric disorders including depression, borderline personality disorder, and conduct disorder (van Ijzendoorn <i>et al.</i>, 1996).</p>	<p><b>Adult Attachment Interview (AAI)</b> (AAI; George <i>et al.</i>, 1985).</p> <p>Three way categorisation reported (secure, dismissing, preoccupied). Data relating to the 25 participants who show the same classification for both mother and father were used for the purposes of effect size calculation.</p>	<p>High levels of attachment insecurity were observed in the forensic psychiatric sample, with 15 participants categorised as dismissing (60%) and 6 categorised as preoccupied (24%). Only 4 were found to be securely attached (16%).</p> <p>This differed significantly from the pattern observed in the normative male sample (62% secure, 22% dismissing, and 16% preoccupied; <math>p=.01</math>).</p>
<p><b>Study 5</b></p> <p>Frodi <i>et al.</i>, 2001</p>	To examine the attachment styles of offenders varying in degree of psychopathy.	<p>Total <math>N=14</math></p> <p>14 incarcerated males varying in degree of psychopathy (i.e. categorised as high or low scorers). The sample comprises a mixed group of violent and non-violent offenders, as well as individuals both with and without mental disorder.</p> <p>Comparison sample of 286 normal males (van Ijzendoorn <i>et al.</i>, 1996).</p>	<p><b>AAI</b></p> <p>Three way categorisation reported (secure, dismissing, preoccupied).</p>	<p>An association between distribution of AAI classification and psychopathy was not observed. The distributions among high and low scorers were almost identical. The results for the 14 participants were therefore considered as one group.</p> <p>High levels of attachment insecurity were observed with 9 participants categorised as dismissing (64%) and 4 categorised as preoccupied (29%), whereas only 1 individual was found to be securely attached (7%). Again, this differs significantly from the distribution observed in the normative male sample (<math>p=.007</math>), with the mentally disordered offenders considerably less secure in their attachment when compared with non-offending controls.</p>
<p><b>Study 6</b></p> <p>Goldstein &amp; Higgins-D'Allessandro, 2001</p>	To explore the relationship between current attachment styles and empathy in both violent and non-violent prisoners.	<p>Total (male) <math>N=179</math></p> <p>3 sub-groups:</p> <p>40 violent offenders</p> <p>76 non-violent offenders</p> <p>63 controls (non-offenders)</p>	<p><b>Simpson Attachment Scale</b> (Simpson, 1990)</p> <p>Three factor dimensional scores reported (secure, avoidant, and anxious) and compared across groups.</p>	<p>The current attachments of both the violent and non-violent male offenders did not differ significantly from that of the control group. The authors therefore suggest that attachment may not be a central determinant in criminal behaviour.</p> <p>However, the authors also suggest that the findings be interpreted with caution as the sample consisted of detainees awaiting trial, some of whom had no previous convictions (the number of which is not reported). It is therefore possible that a proportion of the "offender" sample would have gone on to be acquitted and would therefore not be representative of a criminal group.</p>
<p><b>Study 7</b></p> <p>Hawkins-Rodgers <i>et al.</i>, 2005</p>	To explore the relationship between current attachment representations and support seeking behaviour.	<p>Total <math>N=148</math></p> <p>2 sub-groups:</p> <p>59 male non-violent offenders</p> <p>89 unmatched controls (74 female and 15 male students)</p>	<p><b>Experiences in Close Relationships Inventory</b> (ECRI; Fraley &amp; Waller, 1998)</p> <p>Categorical outcomes reported (i.e. percentage classified as secure, dismissing, fearful and preoccupied).</p>	<p>The non-violent offender group were found to be more securely attached than the student control group. However, offenders were found to be more dismissive in their attachments and students more preoccupied.</p> <p>The authors suggest that the findings may be understood in light of the fact that attachment can be state dependent, with students feeling anxious about their futures and their recent separation from parents.</p>

Authors, Year	Aims	Sample Characteristics	Relevant Measures	Relevant Findings
<b>Study 8</b> Holtzworth-Munroe <i>et al.</i> , 1997	To explore differences in attachment, jealousy, and dependency when comparing violent and maritally distressed husbands with non-violent husbands.	Total $N=87$  2 sub-groups:  58 violent and maritally distressed men & 29 non-violent, non-maritally distressed men.	<b>Adult Attachment Scale</b> (Collins & Read, 1990)  Three factor dimensional scores reported (anxiety over abandonment, avoidance of dependency, and comfort with closeness).	The violent husbands were found to be significantly more insecure in their attachment as compared with non-violent non-maritally distressed controls (i.e. more anxious about abandonment, more avoidant of dependency and less comfortable with closeness).
<b>Study 9</b> Jamieson & Marshall, 2000	To explore attachment styles and violence in child molesters.	Total $N=81$  4 sub-groups:  20 incest SOs  20 non-familial SOs  20 non-sex offending prisoners (nature of offences unclear)  21 community controls	<b>RSQ</b>  Four factor dimensional scores reported (secure, preoccupied, fearful and dismissive).	Differences in attachment between sexual and non-sexual offenders were not observed. The majority of offenders (across all sub-groups) were insecurely attached. The authors therefore suggest that insecure attachment is not specific to sexual offenders, but rather, a general vulnerability in all offenders.  A statistically significant difference with respect to attachment was not found when the offending group as a whole was compared with controls, but the results approached statistical significance. The small sample sizes and insufficient power may account for the lack of a statistically significant finding.
<b>Study 10</b> Kim & Zane, 2004	To examine the relationship between ethnicity, self-construals, and risk factors for spousal assault (i.e. insecure attachment and anger).	Total $N=102$  52 Korean American court-mandated DVM  50 European American DVM  Comparison sample of 16 normal controls (Smallbone & Dadds, 1998)	<b>RSQ</b>  Two factor dimensional scores reported (anxiety and avoidance).	European American DVM were significantly more anxious in their attachment style than Korean American DVM. Furthermore, Korean American DVM were significantly more avoidant in their attachment style than European American DVM. The clinical implications of the findings are discussed.  Both domestically violent sub-groups were significantly more anxious and avoidant in their attachment when compared with normal controls.
<b>Study 11</b> Lawson, 2008	To investigate differences in attachment, interpersonal problems and general family functioning when comparing partner violent men and non-partner violent men.	Total $N=135$  4 sub-groups:  24 batterers with severe personality dysfunction (SD), 25 batterers with moderate personality dysfunction (MD), 51 batterers with low personality dysfunction (LD), & 35 prisoners with no history of partner violence (offenders)	<b>Adult Attachment Scale</b> (Collins & Read, 1990)  Three factor dimensional scores reported (comfort with closeness, comfort with the belief that people can be depended on, and anxiety over rejection and/or abandonment).	Partner violent men classified as having severe personality dysfunction and moderate personality dysfunction showed a greater degree of attachment insecurity as compared with partner violent men with low personality dysfunction and non-partner violent prisoner controls. The partner violent men considered to have low personality dysfunction did not differ significantly from the non-partner violent prisoner controls with respect to security of attachment.
<b>Study 12</b> Levinson & Fonagy, 2004	To investigate whether offenders are more likely to be dismissive in their attachment representations when psychiatric disorders are controlled for.	Total $N=66$  22 prisoners with mental disorders (Axis I & Axis II), 22 psychiatric controls (i.e. non-violent personality disordered patients matched on diagnosis with prisoners), and 22 normal controls	<b>AAI</b>  Four way categorisation reported (secure, dismissing, preoccupied, & cannot classify).	The attachment distributions differed significantly across all three groups with prisoners significantly more likely to be insecure in their attachment classification when compared to both normal and psychiatric controls, and psychiatric controls more likely to be insecure than normal controls.  Prisoners were more likely to be classified as dismissing whereas the psychiatric controls were more likely to be classified as preoccupied.

Authors, Year	Aims	Sample Characteristics	Relevant Measures	Relevant Findings
<b>Study 13</b>  Lyn & Burton, 2004	To examine differences in attachment when comparing sexual and non-sexual offenders and whether attachment is related to offence variables.	Total $N=154$  2 sub-groups:  129 sexual offenders  25 non-sexual offending prisoners (nature of offences not reported)  Compared with general population norms (Bartholomew & Horowitz, 1991, as cited in Sainsbury, 1999)	<b>Experiences in Close Relationships Inventory (ECRI;</b> Brennan <i>et al.</i> , 1998)  Categorical outcomes reported (i.e. percentage classified as secure, dismissing, fearful and preoccupied).	The majority of both the sexual offenders and the prisoner controls were insecurely attached. However, there were some differences in the distribution of attachment patterns, with sexual offenders significantly more fearful in their attachment. Membership in the preoccupied or dismissing categories was not significantly associated with sexual offender status.  The distribution of attachment patterns within the sexual offender group differed significantly from that of normal controls, with the offender group significantly more insecure in their attachments ( $p<.01$ ).
<b>Study 14</b>  Marin-Avellan <i>et al.</i> , 2005	To assess whether the SWAP-200 can be considered valid and reliable for use with forensic populations. This involves assessing the SWAP-200 against other instruments, one of which is the AAI.	Total $N=30$  30 mentally disordered offenders from a maximum security hospital in the UK. All had diagnoses of personality disorder, and those with psychosis were excluded. Sample is mixed in terms of offending history (i.e. includes violent and sexual offenders).  Comparison samples of 286 normal males and 291 clinical participants with a range of psychiatric disorders including depression, borderline personality disorder, and conduct disorder (van Ijzendoorn <i>et al.</i> , 1996).	<b>AAI</b>  Three way categorisation reported (secure, dismissing, preoccupied).	High levels of attachment insecurity were observed in the mentally disordered offending group, with 19 participants categorised as dismissing (64%) and 7 categorised as preoccupied (23%), whereas only 4 were found to be securely attached (13%).  This differs significantly from the pattern observed in the normative male sample (62% secure, 22% dismissing, and 16% preoccupied; $p<.001$ ). The distribution differed somewhat when compared with psychiatric controls (12% secure, 41% dismissing, and 47% preoccupied) in that the majority of offenders were classified as dismissing, whereas the majority of psychiatric controls were classified as preoccupied. However, this difference in distribution was not statistically significant ( $p=.14$ ).
<b>Study 15</b>  Marsa <i>et al.</i> , 2004	To investigate whether child sexual offenders could be differentiated from a number of comparison groups in terms of attachment and other variables.	Total $N=119$  4 sub-groups:  29 child sex offenders  30 violent prisoners  30 non-violent prisoners  30 community controls	<b>ECRI</b> (Brennan <i>et al.</i> , 1998)  Two factor dimensional scores (anxiety and avoidance) reported.	Child sexual offenders showed greater levels of attachment insecurity (both anxiety and avoidance) when compared with non-violent offenders and community controls. However, the sexual offending group did not differ significantly from the violent offending group in terms of attachment anxiety or avoidance, with both showing similarly high levels of insecurity. Consequently, the violent offender group were also significantly more insecure in their attachments than the non-violent offending group and the community controls.
<b>Study 16</b>  Marvian, 1998  <i>Unpublished</i>	To explore differences in attachment when comparing domestically violent men to non-domestically violent men.	Total $N=82$  2 sub-groups:  42 DVM  40 non-violent male controls	<b>Adult Attachment Scale</b> (Hazan & Shaver, 1987)  Categorical outcomes reported (i.e. secure, anxious/ambivalent, or avoidant classifications).	The domestically violent men were found to be significantly less secure in their attachment than controls, with 35.71% categorised as anxious/ambivalent and 21.43% categorised as avoidant.

Authors, Year	Aims	Sample Characteristics	Relevant Measures	Relevant Findings
<b>Study 17</b>  Mauricio <i>et al.</i> , 2007	To explore whether personality disorders (specifically antisocial and borderline) mediate the relationship between domestic violence and insecure attachment.	Total $N=192$  192 court-mandated domestically violent men.  Comparison sample of 63 healthy males without psychiatric disorder (Ditzen <i>et al.</i> , 2008).	<b>ECRI</b> (Brennan <i>et al.</i> , 1998)  Two factor dimensional scores (anxiety and avoidance) reported.  Antisocial and borderline personality traits were measured dimensionally using a self-report questionnaire (i.e. diagnostic interviews were not conducted).	Comparisons with the control sample revealed large effect sizes, with DVM demonstrating higher levels of attachment insecurity (both anxiety and avoidance).  The findings also suggested that personality disorder mediates the relationship between insecure attachment and intimate partner violence. High correlations were observed between antisocial personality scores and attachment avoidance, and borderline personality scores and attachment anxiety as predicted.
<b>Study 18</b>  Nussbaum <i>et al.</i> , 2002	To explore personality differences (including attachment) in four prisoner sub-groups with varying offence histories.	Total $N=184$  4 sub-groups:  44 non-violent offenders  107 violent offenders  21 sexual offenders  12 sexual & violent offenders	<b>Cloninger's Temperament and Character Inventory</b> (TCI; Cloninger, 1994).  Assesses dimensions of impulsivity, empathy and attachment. A higher score on the attachment dimension indicates greater attachment security.	A significant overall difference in attachment was not observed between any of the groups (i.e. all groups were similar in their high levels of attachment insecurity). Although not significantly so, the sexual offender group differed most from all others as they were found to be less impulsive, more empathic and more secure in their attachment. The sexual offender group was largely comprised of child molesters who used psychological coercion rather than physical violence to gain compliance from their victims.
<b>Study 19</b>  Ross & Pfafflin, 2007	To examine the relationship between security of attachment, violence and interpersonal problems in offenders as compared with a non-violent control group.	Total $N=74$  2 sub-groups:  31 offenders (includes both perpetrators of sexual and non-sexual violence)  43 normal controls	<b>Adult Attachment Prototype Rating</b> (EBPR; Straub & Lobo-Drost, 1999)  Categorical outcomes reported (i.e. participants are classified either as secure, ambivalent, dismissing, or mixed insecure).	The distribution of attachment classifications in the offender group differed significantly from that in the normal controls, with the offenders less likely to be classified as secure.
<b>Study 20</b>  Sainsbury, 1999  <i>Unpublished</i>	To explore the relationship between early parenting experiences, attachment and personality disorder in a sample of personality disordered offenders.	Total $N=30$  30 personality disordered offenders with mixed offending histories (i.e. child sexual offenders, rapists and violent offenders)  Compared with general population norms (Bartholomew & Horowitz, 1991, as cited in Sainsbury, 1999)	<b>ECRI</b> (Brennan <i>et al.</i> , 1998)  Categorical outcomes reported (i.e. percentage classified as secure, dismissing, fearful and preoccupied).	The majority of the offending sample were found to be insecurely attached (77%). Within the insecure group, 33.35% were categorised as preoccupied, 10% as dismissing and 33.35% as fearful. This distribution differed significantly from that of normal controls, with the offender group significantly more insecure in their attachments ( $p=.04$ ).  Attachment anxiety was found to be associated with severity of PD (cluster B & C) in the sample. Attachment avoidance was not significantly correlated with the PD cluster scores.

Authors, Year	Aims	Sample Characteristics	Relevant Measures	Relevant Findings
<b>Study 21</b> Sawle & Kear-Colwell, 2001	To explore the relationship between attachment and abusive experiences in childhood in convicted paedophiles and controls.	Total $N=48$ 2 sub-groups: 25 paedophiles 23 community controls (N.B. a third sub-group of victims of sexual abuse was not included in effect size calculations)	<b>Attachment Style Questionnaire</b> (ASQ; Feeney <i>et al.</i> , 1994).  Five factor dimensional scores reported (secure, insecure – relationships as secondary, insecure – preoccupied, insecure – discomfort with closeness, insecure – need for approval).	The sexual offending group were significantly less secure in their attachment than controls. They were also found to be most likely to have a “relationships as secondary” attachment style, which the authors suggest to be similar to dismissing attachment.
<b>Study 22</b> Simons <i>et al.</i> , 2008	To explore the developmental experiences (including attachment) of child sex offenders and rapists.	Total $N=269$ 2 sub-groups: 132 child sex offenders 137 rapists	<b>Adult Attachment Scale</b> (Hazan & Shaver, 1987)  Categorical outcomes reported (i.e. participants are classified either as secure, anxious ambivalent, or avoidant).	94% of the total sample of child sex offenders and rapists were found to be insecurely attached. The classifications of the child sex offenders and rapists were significantly different, with 62% of the child sex offenders classified as anxious/ambivalent, and 76% of rapists were classified as avoidant ( $p<.005$ ).
<b>Study 23</b> Smallbone & Dadds, 1998	To investigate whether attachment varies among different types of sex offenders and controls.	Total $N=80$ 5 sub-groups: 16 rapists (adult stranger victims) 16 intra-familial child molesters 16 extra-familial child molesters 16 non-violent prisoners (property offenders) 16 normal controls	<b>RSQ</b>  Three factor dimensional scores reported (secure, anxiety and avoidance).	The combined sexual offender group were found to be significantly less secure than normal controls. However, the combined sexual offenders did not differ significantly from non-violent property offenders in terms of adult attachment. The authors therefore suggest that insecure attachment may be a risk factor for criminality generally (or that the measures used lacked the specificity to detect group differences).  The intra-familial child molesters were not found to be more anxiously attached than other groups as predicted, nor were the rapists found to be more avoidant. However, the intra-familial child molesters were found to have had more problematic relationships with their mothers, whereas the rapists generally had more problematic relationships with their fathers.
<b>Study 24</b> Stripe <i>et al.</i> , 2006	To explore attachment using the AAI in groups of sexual offenders as compared with violent and non-violent offenders.	Total $N=101$ 5 sub-groups: 22 child SOs (extra-familial), 19 incest offenders, 20 rapists, 20 violent offenders, & 20 non-violent offenders  Comparison sample of 286 normal males (van Ijzendoorn <i>et al.</i> , 1996).	<b>AAI</b>  Three way categorisation reported (secure, dismissing, preoccupied).	No significant differences in attachment security were found across all five sub-groups (i.e. the majority of the entire sample was insecurely attached). However, extra-familial child molesters were more likely than any other offender group to be classified as preoccupied, whereas both rapists and violent offenders were more likely to be categorised as dismissing.  Marked differences were observed when the offending groups were compared to the normative sample, with the exception of the non-violent offenders. The sexual and violent offending groups were significantly more insecure in their attachments (child SOs $p=.002$ ; incest offenders $p=.002$ ; rapists $p=.001$ ; VOs $p=.001$ ). However, the difference between the non-violent offenders and normal controls was non-significant ( $p=.093$ ).

Authors, Year	Aims	Sample Characteristics	Relevant Measures	Relevant Findings
<b>Study 25</b> Timmerman & Emmelkamp, 2006	To explore the relationship between insecure attachment and Cluster B personality disorders in mentally disordered offenders, prisoners, and normal controls.	Total $N=410$  38 forensic psychiatric patients (MDOs)  181 prisoners  191 community controls	<b>Relationship Questionnaire</b> (RQ; Bartholomew & Horowitz, 1991).  Categorical outcomes reported (i.e. participants are classified as secure, fearful, preoccupied or dismissing).	Normal controls were more likely to be categorised as secure in their attachment as compared with both the prisoners and the forensic psychiatric patients. No difference in attachment security was observed when the prisoners were compared with the forensic psychiatric controls (i.e. similarly high levels of attachment insecurity were observed in both groups).  The offending histories of the prisoners and MDOs were not described. It is therefore possible that the sample consisted of mixed offenders (i.e. both violent and sexual). If this was the case, it could have impacted on the results due to the variance in attachment security when comparing sexual and violent offenders.
<b>Study 26</b> Tweed & Dutton, 1998	To compare domestically violent men considered to be impulsive in their spousal assaults with those considered to be instrumental in their violence.	Total $N=114$  3 sub-groups:  32 instrumental batterers  38 impulsive batterers  44 normal controls	<b>RSQ</b>  Four factor dimensional scores reported (secure, preoccupied, fearful and dismissive).	The impulsive DVM were least secure in their attachment style, differing significantly from both the instrumental DVM and controls. However, the instrumental DVM did not differ significantly from controls on the secure dimension, but they were noted to be significantly more preoccupied than controls.  The impulsive DVM demonstrated significantly higher scores than controls on the fearful dimension as well as the preoccupied dimension. No significant differences were observed between any of the groups on the dismissing dimension.
<b>Study 27</b> van Ijzendoorn <i>et al.</i> , 1997	To examine the relationship between personality disorders and attachment in a sample of offenders.	Total $N=40$  40 personality disordered forensic patients (mixed group of violent and sexual offenders)  Comparison samples of 870 non-clinical adults and 291 clinical participants with a range of psychiatric disorders including depression, borderline personality disorder, and conduct disorder (van Ijzendoorn <i>et al.</i> , 1996, as cited in van Ijzendoorn <i>et al.</i> , 1997).	<b>AAI</b>  Three way categorisation reported (secure, dismissing, preoccupied).	95% of the personality disordered offenders were insecure in their attachments (42% dismissing and 53% preoccupied). The authors report statistical comparisons with both non-clinical adults and clinical adults derived from an earlier study (van Ijzendoorn <i>et al.</i> , 1996). The distribution of attachment styles in personality disordered offenders differed significantly from that observed in the non-clinical sample ( $p<.0001$ ) but did not deviate significantly from the distribution observed in the clinical sample ( $p=.52$ ).  The authors therefore suggest that insecure attachment may be a general mental health risk factor, rather than specific to criminality.
<b>Study 28</b> Ward, Hudson & Marshall, 1996	To investigate attachment in sexual offenders as compared with violent offenders and non-violent offenders.	Total $N=147$  4 sub-groups:  55 child molesters  30 rapists  32 violent offenders  30 non-violent offenders	<b>RSQ</b>  Four factor dimensional scores reported (secure, preoccupied, fearful and dismissive).	The majority of all offenders across groups were insecurely attached, regardless of the nature of their offending. There was however some variance across the insecure dimensions, with child molesters showing higher levels of preoccupation. The violent offenders were also noted to be similar to the rapists in that they tended to be more dismissive in their attachment style.  The authors suggest that the high level of attachment insecurity across all offending groups is indicative of a relationship between attachment and criminality more generally, as opposed to a specific relationship with sexual offending.

Authors, Year	Aims	Sample Characteristics	Relevant Measures	Relevant Findings
Study 29 Wood & Riggs, 2008	To test a model of sexual offending (including variables relating to attachment, empathy, and cognitive distortions).	Total $N=61$  61 child sex offenders  Comparison sample of 63 healthy males without psychiatric disorder (Ditzen et al, 2008).	ECRI (Brennan <i>et al.</i> , 1998)  Two factor dimensional scores (anxiety and avoidance) reported.	The logistic regression model indicated that attachment anxiety, cognitive distortions and empathy deficits predicted a large degree of variance in child sexual offender status.  Attachment anxiety was the most significant predictor of child sexual offender status. However, attachment avoidance was not found to be predictive of sexual offending in the model.

### ***Presentation of Results***

Results relating to each research question are presented in a similar manner in Tables 2 to 9. Each table contains comparisons between groups relevant to the research question, and for each comparison, the following data are presented: the  $d$  value and 95% confidence interval (except in relation to studies using categorical measures; in these instances only  $d$  can be reported), and the inverse variance weight ( $w$ ). Presentation of both  $d$  and  $w$  values allows for consideration of both the magnitude and reliability of the effect size. In terms of interpretation of effect sizes, by convention  $d$  values of approximately 0.20 are considered small, values of 0.50 considered medium, and 0.80 and above considered large (Cohen, 1988). If the 95% confidence interval does not include a zero, the effect is statistically significant at the  $p<.05$  level.

### ***Measurement Issues***

The attachment measures used across studies are diverse in that both categorical and continuous outcomes are reported. There is also variance in terms of sub-scales and dimensions reported upon across continuous measures of attachment as determined by the underlying model (e.g. two dimensional scores of anxiety and avoidance, or four dimensional scores of secure, fearful, preoccupied and dismissing). Consequently, the decision was made to compare only those dimensions that have been deemed conceptually similar within the literature. Thus, attachment security, anxiety, and avoidance dimensions were included in the analysis where available as these constructs correspond with Ainsworth *et al.*'s (1978) original classification model. Where more complex patterns were reported, dismissing scores were compared with avoidance scores, and preoccupied scores compared with anxiety scores, as these are conceptually similar constructs (Bartholomew & Shaver, 1998). However, this is not without limitations as the convergence across measures is modest at best, and the fearful category had to be omitted as it does not correspond well with the dimensions/categories reported in other measures (Bartholomew & Shaver, 1998). Furthermore, results from studies employing categorical measures could only be considered in relation to overall security as only a single effect size could be calculated based on the comparison of attachment pattern distributions. The potential implications of this are discussed following consideration of the results.

## Main Research Question - Findings

### Comparing Attachment in Offenders and Non-Offenders

Research question one, the primary focus of this review, was concerned with whether offenders were more insecure in their attachment style than non-offending controls across studies. Effect sizes were compared firstly on the secure dimension in studies reporting continuous outcomes (Table 3). Thereafter, variance in attachment anxiety and avoidance was considered as higher levels of anxiety and/or avoidance are indicative of insecurity (Table 4). Finally, effect sizes derived from studies reporting categorical outcomes were considered, as significant variation in pattern distribution would be indicative of attachment insecurity (Table 5). Confidence intervals could not be calculated for effect sizes marked with an asterisk as in these cases standard deviations were not reported and so  $d$  was calculated on the basis of reported  $t$  values.

**Table 3 – Dimensionally Measured Attachment Security: Comparing Offenders and Non-Offending Controls**

Study	Groups Compared	Attachment Security Effect Size (ES) $d$ & 95% CI in parentheses	$\eta^2$	$\eta^2 \times ES$
<b>Study 2</b> Bogaerts <i>et al.</i> , (2005)	SOs vs. Controls	$d = -0.40 (-0.76 - -0.09)$	41.80	-16.72
<b>Study 3</b> Dutton <i>et al.</i> , (1994)	DVM vs. Controls	$d = -0.36^*$	30.37	-10.93
<b>Study 6</b> Goldstein & Higgins-D'Allessandro (2001)	VOs vs. Controls	$d = 0.01(-1.56 - 1.22)$	24.47	0.25
	NVOs vs. Controls	$d = -0.12 (-1.40 - 1.09)$	34.39	-4.13
<b>Study 8</b> Holtzworth-Munroe <i>et al.</i> , (1997)	DVM vs. Controls	$d = -0.61 (-2.04 - 0.41)$	20.15	-12.29
<b>Study 9</b> Jamieson & Marshall (2000)	Incest SOs vs. Controls	$d = 0.26 (-0.39 - 1.12)$	10.16	2.64
	Non-familial SOs vs. Controls	$d = 0.03 (-0.86 - 0.89)$	10.24	0.31
	Non-SO prisoners vs. Controls	$d = 0.24 (-0.55 - 1.10)$	10.17	2.44
<b>Study 21</b> Sawle & Kear-Colwell (2001)	SOs vs. Controls	$d = -2.06 (-4.45 - -0.26)$	7.92	-16.32
<b>Study 23</b> Smallbone & Dadds (1998)	SOs vs. Controls	$d = -0.82 (-1.08 - -0.48)$	11.30	-9.27
	NVOs vs. Controls	$d = -0.92 (-1.22 - -0.58)$	7.27	-6.69
<b>Study 26</b> Tweed & Dutton (1998)	Instrumental DVM vs. Controls	$d = -0.80^*$	17.21	-13.77
	Impulsive DVM vs. Controls	$d = -0.76^*$	19.05	-14.48

In relation to attachment security as measured dimensionally, negative effect sizes would be expected if the offending group were less secure than the control group, as higher scores on such sub-scales are indicative of greater attachment security. In Table 3, nine of the thirteen reported effect sizes were

negative and therefore in the predicted direction. Of the nine effect sizes in the predicted direction, five were large, three were medium, and one was small. The weighted mean effect size is the sum of each effect size multiplied by its inverse variance weight, divided by the sum of inverse variance weights (Lipsey & Wilson, 2001). For the thirteen effect sizes comparing offenders with non-offending controls in terms of attachment security, the weighted mean effect size was -0.40, showing a medium overall negative relationship between attachment security and offending (i.e. the offending groups were more insecure in their attachments than non-offending controls).

**Table 4 – Dimensional Attachment Anxiety & Avoidance: Comparing Offenders & Non-Offending Controls**

Study	Groups Compared	Attachment Anxiety ES (d) & 95% CI	Anxiety		Attachment Avoidance ES (d) & 95% CI	Avoidance	
			w	w*ES		w	w*ES
<b>Study 1</b> Baker & Beech (2004)	SOs vs. Controls	$d = 0.26$ (-2.99 – 2.94)	10.16	2.64	$d = 0.38$ (-2.69 – 2.16)	10.07	3.83
	VOs vs. Controls	$d = 0.06$ (-3.55 – 2.74)	8.75	0.53	$d = 0.40$ (-2.17 – 2.17)	8.59	3.44
<b>Study 2</b> Bogaerts <i>et al.</i> , (2005)	SOs vs. Controls	$d = -0.05$ (-0.48 – 0.40)	40.99	-2.05	$d = 0.16$ (-0.25 – 0.52)	40.85	6.54
<b>Study 3</b> Dutton <i>et al.</i> , (1994)	DVM vs. Controls	$d = 0.25^*$	29.83	7.46	$d = 0.10^*$	29.97	2.99
<b>Study 6</b> Goldstein & Higgins-D'Allessandro (2001)	VOs vs. Controls	$d = 0.03$ (-1.47 – 1.20)	24.46	0.74	$d = 0.09$ (-1.73 – 1.29)	24.44	2.20
	NVOs vs. Controls	$d = 0.26$ (-0.97 – 1.44)	34.16	8.88	$d = 0.22$ (-1.10 – 1.43)	34.24	7.53
<b>Study 8</b> Holtzworth-Munroe <i>et al.</i> , (1997)	DVM vs. Controls	$d = 0.73$ (-0.48 – 2.24)	18.27	13.34	$d = 0.86$ (-0.35 – 2.74)	17.89	15.39
<b>Study 9</b> Jamieson & Marshall (2000)	Incest SOs vs. Controls	$d = -0.08$ (-0.84 – 0.74)	10.25	-0.82	$d = 0.39$ (-0.37 – 1.04)	10.06	3.92
	Non-familial SOs vs. Controls	$d = -0.03$ (-0.88 – 0.80)	10.24	-0.31	$d = 0.66$ (-0.30 – 1.32)	9.73	6.42
	Non-SO Prisoners vs. Controls	$d = -0.42$ (-1.02 – 0.40)	10.03	-4.21	$d = 0.50$ (-0.38 – 1.15)	9.95	4.98
<b>Study 10</b> Kim & Zane (2004)	Korean-American DVM vs. Controls	$d = -0.04$ (-0.22 – 0.50)	12.24	-0.49	$d = 1.02$ (0.79 – 1.46)	11.21	11.43
	European-American DVM vs. Controls	$d = 0.37$ (0.16 – 0.91)	11.97	4.43	$d = 0.61$ (0.45 – 1.06)	11.73	7.16
<b>Study 15</b> Marsa <i>et al.</i> , (2004)	SOs vs. Controls	$d = 0.80$ (0.40 – 1.30)	13.68	10.94	$d = 1.30$ (0.97 – 1.80)	12.23	15.90
	NVOs vs. Controls	$d = 0.15$ (-0.28 – 0.65)	14.96	2.24	$d = 0.38$ (-0.04 – 0.89)	14.74	5.60
	VOs vs. Controls	$d = 0.46$ (0.03 – 0.96)	14.62	6.73	$d = 0.56$ (0.17 – 1.06)	14.45	8.09

<b>Study 17</b> Mauricio <i>et al.</i> , (2007)	DVM vs. Controls	$d = 1.10$ (0.91 – 1.31)	42.66	46.93	$d = 1.08$ (0.93 – 1.26)	42.82	46.25
<b>Study 21</b> Sawle & Kear-Colwell (2001)	SOs vs. Controls	$d = 0.31$ (-1.56 – 2.39)	11.84	3.67	$d = 1.33$ (-0.97 – 3.59)	9.87	13.13
<b>Study 23</b> Smallbone & Dadds (1998)	SOs vs. Controls	$d = 0.78$ (0.50 – 1.32)	11.37	8.87	$d = 1.23$ (0.95 – 1.67)	10.54	12.96
	NVOs vs. Controls	$d = 0.64$ (0.10 – 1.18)	7.63	4.88	$d = 1.29$ (0.90 – 1.74)	6.68	8.62
<b>Study 26</b> Tweed & Dutton (1998)	Instrumental DVM vs. Controls	$d = 0.80^*$	17.21	13.77	$d = 0.06$	18.52	1.11
	Impulsive DVM vs. Controls	$d = 0.76$	19.05	14.48	$d = 0.06$	20.38	1.22
<b>Study 29</b> Wood & Riggs (2008)	SOs vs. Controls	$d = 0.76$ (0.42 – 0.98)	28.93	21.99	$d = 0.80$ (0.53 – 0.98)	28.72	22.98

In relation to attachment anxiety and avoidance as measured dimensionally, effect sizes would be expected to be positive if the offending group were less secure than the control group, as higher scores on such sub-scales are indicative of attachment insecurity (i.e. higher levels of anxiety and/or avoidance).

For attachment anxiety, seventeen of the twenty-two reported effect sizes in Table 4 were in the predicted direction. Of the seventeen effect sizes in the predicted direction, seven were large, two were medium, and eight were small. The weighted mean effect size was 0.41, indicative of a medium overall relationship between insecure anxious attachment and offending (i.e. the offending groups were more anxious in their attachments than non-offending controls).

For attachment avoidance, all twenty-two of the reported effect sizes in Table 4 were in the predicted direction. Eight would be considered large, four medium, and ten small. The weighted mean effect size was 0.53, indicative of a medium overall relationship between insecure avoidant attachment and offending (i.e. the offending groups were more avoidant in their attachments than non-offending controls).

**Table 5 – Attachment Measured Categorically: Comparing Offenders and Non-Offending Controls**

Study & Measure Used	Groups Compared	ES (d)	w	w*ES	Attachment Distributions
<b>Study 4</b> Fischer <i>et al.</i> , (1998) AAI	MDOs vs. Controls (normative data)	$d = 1.15$	10.77	12.39	MDOs – 16% secure, 60% dismissing & 24% preoccupied.  Normative data - 62% secure, 22% dismissing, & 16% preoccupied.
<b>Study 5</b> Frodi <i>et al.</i> , (2001) AAI	Offenders vs. Controls (normative data)	$d = 1.5$	5.53	8.30	Offenders – 7% secure, 64% dismissing, & 29% preoccupied.  Normative data - 62% secure, 22% dismissing, & 16% preoccupied.

<b>Study 7</b> Hawkins-Rodgers <i>et al.</i> , (2005) ECRI	NVOs vs. Controls	$d = 0.9$	32.37	29.13	NVOs – 50.8% secure, 18.6% fearful, 8.4% preoccupied, 22.2% dismissing.  Controls – 24.7% secure, 30.3% fearful, 37% preoccupied, 7% dismissing.
<b>Study 12</b> Levinson & Fonagy (2004) AAI	MDOs vs. Controls	$d = 0.9$	10.06	9.05	MDOs – 18.2% secure, 13.6% preoccupied, 36.4% dismissing, 31.8% cannot classify.  Controls – 54.5% secure, 13.6% preoccupied, 22.7% dismissing, 9.1% cannot classify.
<b>Study 13</b> Lyn & Burton (2004) ECRI	Sexual Offenders vs. Controls (normative data)	$d = 1.0$	7.58	7.58	SOs – 14.7% secure, 17.1% preoccupied, 11.6% dismissing, 56.6% fearful.  Controls – 49% secure, 12% preoccupied, 21% dismissing, 18% fearful.
<b>Study 14</b> Marin-Avellan <i>et al.</i> , (2005) AAI	MDOs vs. Controls (normative data)	$d = 1.25$	12.60	15.75	MDOs – 13% secure, 64% dismissing, 23% preoccupied.  Normative data - 62% secure, 22% dismissing, & 16% preoccupied.
<b>Study 16</b> Marvian (1998) AAS	DVM vs. Controls	$d = 0.35$	20.18	7.06	DVM – 42.86% secure, 35.71% anxious, 21.43% avoidant.  Controls – 67.5% secure, 25% anxious, 7.5% avoidant.
<b>Study 19</b> Ross & Pfafflin (2007) EBPR	Prisoners vs. Controls	$d = 1.0$	16.10	16.10	Prisoners – 35% secure, 19% anxious ambivalent, 19% dismissing, 26% mixed insecure.  Controls – 79% secure, 2% anxious ambivalent, 7% dismissing, 12% mixed insecure.
<b>Study 20</b> Sainsbury (1999) ECRI	PD Offenders vs. Controls	$d = 0.8$	13.92	11.14	PD Offenders – 23.3% secure, 33.35% preoccupied, 10% dismissing, 33.35% fearful.  Controls – 49% secure, 12% preoccupied, 21% dismissing, 18% fearful.
<b>Study 25</b> Timmerman & Emmelkamp (2006) RQ	MDOs vs. Controls  Prisoners vs. Controls	$d = 0.55$  $d = 0.45$	31.05  90.65	17.08  40.79	MDOs – 28.9% secure, 18.4% dismissing, 13.2% preoccupied, 39.5% fearful.  Prisoners - 37% secure, 26% dismissing, 9.4% preoccupied, 27.6% fearful.  Controls - 56% secure, 17.8% dismissing, 11.5% preoccupied, 14.7% fearful.
<b>Study 27</b> van Ijzendoorn <i>et al.</i> , (1997) AAI	PD Offenders vs. Controls	$d = 1.48$	15.77	23.34	PD Offenders – 5% secure, 42% dismissing, 53% preoccupied.  Controls – 59% secure, 23% dismissing, 18% preoccupied.

Effect sizes derived from studies reporting categorical outcomes were considered separately from studies reporting dimensional outcomes as chi square statistics were used to determine variation in

attachment style distribution across the samples. Consequently, categories of attachment (e.g. dismissing) could not be considered in isolation, and as such, significant variation in pattern distribution was seen as indicative of attachment insecurity and thus relevant to the main research question. The attachment distributions in samples of offenders as compared with controls were explored based on data from eleven studies, resulting in twelve effect sizes, all of which were in the predicted direction (see Table 5). Nine of the eleven effect sizes would be considered large, two medium, and one small. The weighted mean effect size was 0.78, indicative of a medium-large effect in terms of attachment security when comparing offenders with non-offenders. The weighted mean effect size in this instance does not provide information regarding the nature of insecurity. The distribution of attachment patterns in each study are therefore described in Table 5. In terms of the percentage of offenders categorised as secure, the range reported in the ten studies included in this review was 5% - 50.8%. This was considerably different from the range of 24.7% - 79% reported for non-offending controls.

In summary, results indicated that offenders were significantly less secure in their attachment than non-offending controls across studies. Medium to large effects were also observed with respect to the relationships between attachment anxiety and offending, and attachment avoidance and offending.

#### Subsidiary Analyses - Findings

##### ***Question 2: Comparing Attachment in Mentally Disordered Offenders and Psychiatric Controls***

Research question two was concerned with whether mentally disordered offenders differed from non-offending mental health populations in terms of attachment security. These analyses were exploratory as only four studies reported data relating to this question, all of which assessed attachment categorically using the AAI.

**Table 6 – Attachment Measured Categorically: Comparing Offenders and Psychiatric Controls**

Study	Groups Compared	ES (d) & 95% CI	<i>w</i>	<i>w</i> *ES	Attachment Distributions
<b>Study 4</b> Fischer <i>et al.</i> , 1998	MDOs vs. Psychiatric Controls	<i>d</i> = 0.52	12.10	6.29	MDOs – 16% secure, 60% dismissing, 24% preoccupied.  Psychiatric Controls – 12% secure, 40% dismissing, 48% preoccupied.
<b>Study 12</b> Levinson & Fonagy (2004)	MDOs vs. Psychiatric Controls	<i>d</i> = 1.25	9.26	11.58	MDOs – 18.2% secure, 13.6% preoccupied, 36.4% dismissing, 31.8% cannot classify.  Psychiatric Controls – 22.7% secure, 50% preoccupied, 0% dismissing, 27.3% cannot classify.
<b>Study 14</b> Marin-Avellan <i>et al.</i> , (2005)	MDOs vs. Psychiatric Controls	<i>d</i> = 0.55	14.47	7.96	MDOs – 13% secure, 64% dismissing, 23% preoccupied.  Psychiatric Controls – 13% secure, 40% dismissing, 47% preoccupied.
<b>Study 27</b> van Ijzendoorn <i>et al.</i> , (1997)	PD Offenders vs. Psychiatric Controls	<i>d</i> = 0.25	19.85	4.96	PD Offenders – 5% secure, 42% dismissing, 53% preoccupied.  Psychiatric Controls – 12% secure, 41% dismissing, 47% preoccupied.

Of the four effect sizes relating to question two, one would be considered large, two medium, and one small. The weighted mean effect size was 0.55, indicative of a medium effect in terms of attachment security when comparing mentally disordered offenders with non-offending psychiatric controls. This would suggest that mentally disordered offenders do differ significantly in their attachment classifications on the AAI when compared with non-offending psychiatric controls given that a weighted medium effect was obtained on the basis of a small number of studies. However, the effect size does not provide information about the nature of the variance in attachment style, and as such, the attachment distributions in both samples are described in Table 6. It seems that both groups tend to be insecure in their attachments, with only 5% - 18.2% of mentally disordered offenders and 12% - 22.7% of non-offending psychiatric controls classified as secure across studies. However, the groups vary in terms of the proportions classified as dismissing and preoccupied, as it seems that mentally disordered offenders are more likely to be categorised as dismissing (36.4% - 64%) whereas non-offending psychiatric controls are more likely to be classified as preoccupied (47% - 50%).

### ***Question 3: Comparing Attachment across Offenders both with and without Mental Disorder***

Research question three was concerned with whether mentally disordered offenders differed from non-mentally disordered offenders in terms of attachment security. Again, these analyses were exploratory as only three studies reported data relating to this question, two of which assessed attachment across dimensions (i.e. Bogaerts *et al.*, 2005, and Lawson, 2008), and one of which assessed attachment categorically (i.e. Timmerman & Emmelkamp, 2006).

In relation to attachment security as measured dimensionally, the weighted mean effect size was found to be -0.48, indicative of a medium effect in terms of attachment security when comparing offenders with mental disorder to those without mental disorder, with mentally disordered offenders more insecure in their attachments (as indicated by the negative direction of the effect size). Further support for a difference in attachment pattern across the two groups came from the categorical study by Timmerman and Emmelkamp (2006) who found some variation in attachment style when the attachment distributions of mentally disordered offenders were compared with those of non-mentally disordered offenders ( $d = 0.25$ ; small effect). That is, whilst the majority of both groups were insecure, slightly more prisoners were categorised as dismissive in their attachment style, whereas slightly more of the mentally disordered offending group were classified preoccupied or fearful.

The analyses in relation to the main research question revealed that attachment insecurity was evident across all offending sub-groups, including offenders without mental disorder. However, the small to medium effect observed when comparing mentally disordered offenders to offenders without mental disorder might suggest that personality dysfunction and mental health difficulties increase as attachment security decreases in offending populations. However, this is a very tentative conclusion as it is based on data from only three studies and thus requires empirical validation in further research.

**Question 4: Comparing Attachment in Violent and Non-Violent Offenders**

Research question four was concerned with whether there was any evidence to suggest that attachment differences exist between violent (i.e. both sexually violent and non-sexually violent) and non-violent offenders. Six studies reported data relating to this hypothesis, one of which measured attachment categorically (i.e. Stripe *et al.*, 2006). The meta-analytic data relating to the dimensional studies are summarised in Table 7.

**Table 7 – Attachment Measured Dimensionally: Comparing Violent and Non-violent Offenders**

Study	Groups Compared	Attachment Dimension ES (d) & 95% CI	w	w*ES
<b>Study 6</b> Goldstein & Higgins-D'Allessandro (2001)	VOs vs. NVOs	Secure: $d = 0.13$ (-1.44 – 1.40)	26.16	3.40
		Anxiety: $d = -0.23$ (-1.73 – 1.00)	26.05	-5.99
		Avoidance: $d = -0.13$ (-1.94 – 1.19)	26.16	-3.40
<b>Study 15</b> Marsa <i>et al.</i> (2004)	Child SOs vs. NVOs	Anxiety: $d = 0.70$ (0.29 – 1.12) Avoidance: $d = 0.95$ (0.62 – 1.38)	13.92 13.29	9.74 12.63
	VOs vs. NVOs	Anxiety: $d = 0.33$ (-0.10 – 0.76) Avoidance: $d = 0.17$ (-0.22 – 0.60)	14.80 14.95	4.88 2.54
<b>Study 18</b> Nussbaum <i>et al.</i> (2002)	VOs vs. NVOs	Secure: $d = -0.06$ (-1.84 – 2.43)	31.17	-1.87
	SOs vs. NVOs	Secure: $d = 0.56$ (-2.96 – 3.06)	13.75	7.70
	SO/VOs vs. NVOs	Secure: $d = -0.20$ (-4.55 – 2.30)	10.96	-2.19
<b>Study 23</b> Smallbone & Dadds (1998)	SOs vs. NVOs	Secure: $d = -0.12$ (-0.38 – 0.17)	11.98	-1.44
		Anxiety: $d = 0.10$ (-0.19 – 0.64)	11.98	1.20
		Avoidance: $d = 0.11$ (-0.18 – 0.50)	11.99	1.32
<b>Study 28</b> Ward, Hudson, & Marshall (1996)	VOs vs. NVOs	Secure: $d = 0$ (-0.20 – 0.21)	0	0
		Anxiety (preoccupied): $d = 0.13$ (-0.23 – 0.38)	15.45	2.01
		Avoidance (dismissing): $d = 0.50$ (0.25 – 0.81)	15.03	7.52
	Rapists vs. NVOs	Secure: $d = 0.07$ (-0.15 – 0.27)	14.99	1.05
		Anxiety (preoccupied): $d = 0.38$ (0.05 – 0.63)	14.74	5.60
		Avoidance (dismissing): $d = 0.34$ (0.09 – 0.64)	14.79	5.03
	Child SOs vs. NVOs	Secure: $d = 0.38$ (-0.60 – -0.17)	19.10	7.26
		Anxiety (preoccupied): $d = 0.80$ (0.63 – 1.05)	18.11	14.49
		Avoidance (dismissing): $d = -0.12$ (-0.33 – 0.19)	19.38	-2.33

Within the five studies exploring differences between violent and non-violent offenders on the secure dimension, eight effect sizes were relevant; five of which were positive (indicating slightly higher levels of security in violent offenders) and three of which were negative (indicative of an inverse relationship between attachment security and violence). However, the majority of these effect sizes were very small, and the weighted mean effect was 0.11, indicating little difference between violent and non-violent offenders in terms of attachment security as measured dimensionally.

In relation to comparisons of attachment anxiety, seven effect sizes were relevant. Six were positive (indicating higher levels of attachment anxiety in violent offenders when compared with non-violent offenders) and one was negative. Of the six positive effect sizes, one would be considered large, one medium, and 4 small. The weighted mean effect size was 0.28, indicating a small effect in terms of attachment anxiety when violent offenders are compared with non-violent offenders, with violent offenders more anxious in their attachments.

In relation to comparisons of attachment avoidance, seven effect sizes were relevant. Five were positive (indicating higher levels of attachment avoidance in violent offenders when compared with non-violent offenders) and two were negative. Of the five positive effect sizes, one would be considered large, one medium, and three small. The weighted mean effect size was 0.20, indicating a small effect in terms of attachment avoidance when violent offenders are compared with non-violent offenders, with violent offenders more avoidant in their attachments.

The categorical study produced larger effect sizes. Stripe *et al.* (2006) compared non-familial child sexual offenders, familial child sexual offenders, rapists, and violent offenders to a group of non-violent offenders using the AAI (George *et al.*, 1985). The comparisons between the two groups of child sexual offenders, rapists, violent offenders and non-violent offenders were applicable to this question, meaning that four effect sizes were relevant, all of which would be considered medium to large ( $d = 0.5-0.9$ ). The weighted mean effect size was 0.68, indicating a medium effect for attachment insecurity as measured categorically when comparing violent offenders to non-violent offenders.

**Question 5: Does Attachment Vary According to Type of Violent Offence?**

Research question five was concerned with whether attachment style varies according to offence type (e.g. sexual offences, intimate partner violence). None of the studies involving perpetrators of intimate partner violence compared domestically violent men with other offender sub-types so these studies were not considered in the analyses relating to question five. However, there were a sufficient number of comparisons between violent and sexual offenders and different sexual offender types to allow for exploratory analyses in relation to these offence types.

Comparing Violent & Sexual Offenders

Six studies reported data relating to this research question, one of which measured attachment categorically (Stripe *et al.*, 2006). The meta-analytic data relating to the dimensional studies are summarised in Table 8.

**Table 8 – Attachment Measured Dimensionally: Comparing Sexual and Violent Offenders**

Study	Groups Compared	Attachment Dimension ES (d) & 95% CI	w	w*ES
<b>Study 1</b> Baker & Beech (2004)	SOs vs. VOs	Anxiety: $d = 0.19$ (-3.05 – 3.79) Avoidance: $d = 0.05$ (-3.02 – 2.62)	8.54 8.57	1.62 0.43
<b>Study 9</b> Jamieson & Marshall (2000)	Incest SOs vs. Non-SO Prisoners	Secure: $d = 0$ (-0.65 – 0.79) Anxiety (preoccupied): $d = 0.35$ (-0.40 – 0.96) Avoidance (dismissing): $d = -0.13$ (-0.89 – 0.75)	0 9.86 10.02	0 3.45 -1.30
	Non-familial SOs vs. Non-SO Prisoners	Secure: $d = -0.21$ (-1.09 – 0.58) Anxiety (preoccupied): $d = 0.39$ (-0.46 – 0.99) Avoidance (dismissing): $d = 0.17$ (-0.79 – 1.05)	10.05 9.82 9.97	-2.11 3.83 16.94
<b>Study 15</b> Marsa <i>et al.</i> (2004)	Child SOs vs. VOs	Anxiety: $d = 0.35$ (-0.05 – 0.78) Avoidance: $d = 0.80$ (0.47 – 1.19)	14.53 13.68	5.09 10.94
<b>Study 18</b> Nussbaum <i>et al.</i> (2002)	SOs vs. VOs	Secure: $d = 0.57$ (-2.95 – 2.35)	17.18	9.79
	SO/VOs vs. VOs	Secure: $d = -0.12$ (-4.47 – 1.66)	10.80	-1.30

<b>Study 28</b> Ward <i>et al.</i> (1996)	Child SOs vs. VOs	Secure: $d = -0.38$ (-0.60 – -0.17)	19.90	-7.56
		Anxiety (preoccupied): $d = 0.54$ (0.37 – 0.90)	19.58	10.57
		Avoidance (dismissing): $d = -0.64$ (-0.85 – -0.39)	19.33	-12.37
	Rapists vs. VOs	Secure: $d = 0.07$ (-0.15 – 0.27)	14.99	1.05
		Anxiety (preoccupied): $d = 0.20$ (-0.12 – 0.55)	14.93	2.99
		Avoidance (dismissing): $d = -0.17$ (-0.42 – 0.08)	14.95	-2.54

Six effect sizes relate to comparisons between sexual and violent offenders on the secure dimension. Three of these effect sizes are positive and three are negative; and all would be considered small-medium. This would indicate mixed results whereby in some studies sexual offenders were slightly more secure in their attachments than violent offenders, and in other studies the reverse was true (i.e. violent offenders were more secure in their attachments than sexual offenders). The weighted mean effect size was close to zero, indicating no effect in terms of attachment security as measured dimensionally when comparing sexual to violent offenders (i.e. it seems that in this instance the effect sizes cancelled each other out). It may be that a larger number of studies would produce a clearer result.

However there was some variation in relation to attachment anxiety and avoidance when comparing sexual and violent offenders on dimensional measures across studies. For attachment anxiety, six effect sizes were calculated, all of which were positive and small-medium (indicating that sexual offenders were more anxious in their attachments than violent offenders). The weighted mean effect size was 0.36, suggesting a small to moderate effect in terms of attachment anxiety when comparing sexual offenders with violent offenders, with sexual offenders more anxious in their attachments. For attachment avoidance, six effect sizes were relevant but the trend was less clear as three were negative (indicating that violent offenders are more anxious in their attachments than sexual offenders) and three were positive (suggestive of a stronger relationship between attachment avoidance and sexual offending as compared to violent offending). The weighted mean effect size was very small at 0.16 which may not necessarily reflect the true relationship as large opposing effect sizes would have effectively cancelled each other out. This pattern of effect sizes would suggest that attachment avoidance is more strongly related to sexual offending in some instances and to violent offending in others. This result may have occurred due to the fact that different types of sexual offenders were combined (e.g. rapists and child sexual offenders) in the analyses.

Again, the categorical study produced larger effect sizes. Stripe *et al.* (2006) compared non-familial child sexual offenders, familial child sexual offenders, and rapists to a group of violent offenders using the AAI (George *et al.*, 1985). Three effect sizes were relevant, but varied dramatically across group comparisons. That is, when non-familial child sexual offenders were compared with violent offenders, a  $d$  of 1.6 was observed, indicating a very large degree of variance in attachment strategy between the two groups. The differences between the rapists and violent offenders ( $d = 0.14$ ), and familial sex offenders and violent offenders ( $d = 0.3$ ), would be considered small however. The weighted mean effect size when comparing the three groups as a whole with violent offenders was 0.62, indicating that sexual offenders do differ from violent offenders with respect to attachment, with sexual offenders generally more anxious and violent offenders generally more avoidant. However, it seems that it may

be inaccurate to combine the different types of sexual offenders given the large variance in effect sizes across sexual offender sub-groups, as well as the fact that there was little difference between rapists and violent offenders, for example.

It was therefore deemed necessary to consider variance in attachment strategy between different types of sexual offenders. Consequently, exploratory comparisons between different types of sexual offenders were carried out to investigate this further.

### Sexual Offender Types

Five studies reported data relating to this research question, two of which measured attachment categorically (i.e. Simons *et al.*, 2008, and Stripe *et al.*, 2006). The meta-analytic data relating to the dimensional studies are summarised in Table 9.

**Table 9 – Attachment as Measured Dimensionally Across Different Sexual Offender Types**

Study	Groups Compared	Attachment Dimension ES (d) & 95% CI	w	w*ES
Jamieson & Marshall (2000)	Incest SOs vs. Non-familial SOs	Secure: $d = 0.23$ (-0.43 – 1.11)	9.94	2.29
		Anxiety (preoccupied): $d = -0.05$ (-0.81 – 0.80)	10.00	-0.5
		Avoidance (dismissing): $d = -0.31$ (-1.06 – 0.65)	9.89	-3.07
Smallbone & Dadds (1998)	Rapists vs. Intra-familial SOs	Secure: $d = -0.11$ (-0.50 – 0.38)	7.99	-0.88
		Anxiety: $d = 0$ (-0.54 – 0.49)	0	0
		Avoidance: $d = 0.30$ (-0.14 – 0.84)	7.91	2.37
	Rapists vs. Extra-familial SOs	Secure: $d = -0.25$ (-0.64 – 0.14)	7.94	-1.99
		Anxiety: $d = 0.48$ (-0.06 – 0.97)	7.79	3.74
		Avoidance: $d = 0.40$ (0.00 – 0.89)	7.85	3.14
	Intra-familial SOs vs. Extra-familial SOs	Secure: $d = -0.11$ (-0.60 – 0.28)	7.99	-0.88
		Anxiety: $d = 0.50$ (0.01 – 0.99)	7.77	3.89
		Avoidance: $d = 0.10$ (-0.44 – 0.54)	7.99	0.80
Ward, Hudson, & Marshall (1996)	Rapists vs. Child SOs	Secure: $d = 0.42$ (0.21 – 0.65)	19.04	8.00
		Anxiety (preoccupied): $d = -0.32$ (-0.64 – -0.15)	19.19	-6.14
		Avoidance (dismissing): $d = 0.48$ (0.23 – 0.69)	18.92	9.08

Based on the available data, two types of sexual offender comparisons were possible: rapists and child molesters, and intra-familial and extra-familial child molesters.

For rapist and child molester comparisons, three effect sizes were relevant to the secure, anxious and avoidant dimensions. In relation to attachment security, the weighted mean effect size was 0.15 suggesting that rapists were slightly less secure in their attachments than child sexual offenders. In relation to attachment anxiety, the weighted mean effect size was near zero meaning that on the basis of the small number of studies available, rapists did not differ from child molesters on this dimension. In relation to attachment avoidance however, the weighted mean effect size was 0.42, indicating a moderate relationship between crimes of rape and avoidant attachment.

In terms of categorical outcomes relating to rapist and child molester comparisons, both the Simons *et al.* (2008) and Stripe *et al.* (2006) studies reported relevant data. Three effect sizes were relevant, with a weighted mean effect size of 1.01, indicating a very large effect when comparing the attachment distributions of child sexual offenders with rapists. On examination of the distributions of attachment

patterns, rapists were significantly more likely to be considered avoidant or dismissive in their attachments, whereas child sexual offenders were significantly more likely to be considered anxious or preoccupied in their attachments.

For intra-familial and extra-familial child-molester comparisons, two effect sizes were relevant to the secure, anxious and avoidant dimensions. In relation to attachment security, the weighted mean effect size was near zero, meaning that on the basis of the small number of studies available, intra-familial child molesters did not differ significantly from extra-familial child molesters on this dimension. In relation to attachment anxiety, the weighted mean effect size was 0.19, indicating that intra-familial child molesters were slightly more anxious in their attachments than extra-familial child molesters. The reverse was true in relation to the avoidance dimension whereby extra-familial child molesters were found to be slightly more avoidant in their attachments than intra-familial child molesters (weighted mean effect size was -0.08).

Only one study reported a categorical comparison of intra-familial and extra-familial child molesters (i.e. Stripe *et al.*, 2006) and a large effect was noted ( $d = 1.2$ ), with extra-familial child molesters significantly more preoccupied in their attachments and intra-familial child molesters significantly more dismissive in their attachments. This result is very different from that found across the two dimensional studies, but may simply represent chance variation as the total analyses are based on only three papers and thus a small sample size.

## **Discussion**

Through a meta-analysis of 29 studies including 2620 offenders, the relationship between attachment security and offending was examined. The results indicated that offenders were less secure in their attachment than non-offending controls across studies as medium to large effects were observed. Furthermore, medium to large effects were noted with respect to attachment anxiety and avoidance when comparing offenders with non-offending controls, with offenders significantly more anxious and avoidant in their attachments. Consequently, it would seem that there is an association between insecure attachment and criminality generally. However, the nature and degree of insecurity varies across offender sub-groups as evidenced by results relating to the subsidiary research questions.

The issue as to whether attachment differs in mentally disordered offenders as compared with non-offending mental health populations was explored in light of the proposition by van Ijzendoorn *et al.* (1997) that “insecure attachment may be a general mental health risk factor, rather than a specific determinant of severe criminal behaviour” (p. 456). A medium effect was observed when mentally disordered offenders were compared with non-offending psychiatric controls. However, the groups varied little in terms of degree of insecurity, but rather in nature, as the mentally disordered offenders were more likely to be classified as dismissing whereas the psychiatric controls were more likely to be classified as preoccupied. This would suggest that there are associations between insecure attachment and both mental health problems and criminality, but that those who offend may be more likely to be considered dismissive (or avoidant) in their attachment style.

The question as to whether mentally disordered offenders differed from non-mentally disordered offenders in terms of attachment security was also explored. Across studies reporting dimensional outcomes, an inverse medium effect was observed, indicating that mentally disordered offenders were less secure in their attachments when compared with non-mentally disordered offenders. A small effect was also observed in a study that compared mentally disordered offenders with non-mentally disordered prisoners on a categorical measure of attachment. This would suggest that whilst there is an association between attachment and criminality generally, the degree of insecurity may be greater in mentally disordered offending populations. However, this is a tentative conclusion as it is based on data from a small number of studies.

Differences in attachment among offender sub-types were also explored. When comparing violent and non-violent offenders, small to medium effects were observed with respect to attachment insecurity, with violent offenders more insecure in their attachments. This might suggest that violence increases as attachment security decreases (i.e. the more violent the individual, the less secure he is likely to be in his attachment). However, this is once again a tentative suggestion requiring further investigation as none of the studies included in the review considered violence severity, but rather, offenders were classified as either violent or non-violent. Future research examining the association between attachment security and violence severity is therefore required in order to explore this potential relationship further.

Mixed results were observed when comparing sexual offenders and non-sexual violent offenders in terms of attachment security, with some studies reporting greater levels of insecurity in violent offenders, and others reporting greater levels of insecurity in sexual offenders. A clearer pattern emerged with respect to attachment anxiety however, with a small to medium effect observed in relation to attachment anxiety and sexual offending (i.e. sexual offenders were more anxious in their attachments than violent offenders). Mixed results were observed in relation to attachment avoidance, perhaps because different types of sexual offenders (i.e. rapists and child sexual offenders) were combined and compared with violent offenders when it might have been more appropriate to consider them as distinct groups. The effect sizes observed in the only categorical study relating to this question (i.e. Stripe *et al.*, 2006) would support this notion, as a large effect was observed when comparing the attachment distributions of rapists and child molesters, with rapists significantly more dismissive in their attachments, and child molesters significantly more preoccupied. Furthermore, the rapists were closest to the violent offenders in their attachment style (i.e. predominantly dismissive), whereas the child sexual offenders were more anxious, so again this would suggest that combining rapists and child sexual offenders is perhaps inappropriate as they do not appear to be a homogenous group with respect to attachment. Consequently, comparisons of different sexual offender types were carried out.

With respect to variance in attachment among different types of sexual offenders, comparisons between rapists and child sexual offenders on continuous measures revealed a small effect with respect to attachment security (with child sexual offenders being slightly more secure than rapists), no effect with respect to attachment anxiety, and a medium effect with respect to attachment avoidance (i.e. rapists were more avoidant in their attachments than child sexual offenders). The categorical studies produced

much larger effects, with significant differences noted between the two groups; namely that the child sexual offenders were more likely to be considered anxious in their attachment style and the rapists more likely to be considered avoidant. The fact that no effect was observed in relation to attachment anxiety when comparing the groups on continuous measures is surprising given the very large effect observed when categorical measures were employed. However, examination of the effect sizes across continuous measures revealed a large spread ( $d = -0.38 - 0.48$ ) meaning that in some instances small-medium effects were observed with child sexual offenders more anxious, and in other instances the reverse was true with rapists more anxious in their attachments. Again, this overall near zero effect may have occurred through the combination of intra and extra familial sexual offenders into a “child sexual offending” comparison group. Indeed, this may also be inappropriate as it seems that they may not be a homogenous group with respect to attachment either as described below.

Based on the small number of studies reporting relevant data, mixed results were observed when intra-familial child molesters were compared with extra-familial child molesters. Across continuous measures of attachment, the two groups did not differ with respect to attachment security (i.e. they were similarly insecure). However, small effects were observed with respect to attachment anxiety and avoidance, with intra-familial child molesters more anxious in their attachments and extra-familial child molesters more avoidant. Results from the single categorical study in this area produced conflicting results however, as a large effect and reverse pattern of attachment was observed (i.e. the intra-familial child molesters were significantly more dismissive and the extra-familial child molesters more preoccupied). Again, as this was based on a small number of studies, it may simply represent a chance fluctuation. Further studies will be required in order to investigate whether attachment style does indeed vary among intra-familial and extra-familial child molesters.

In summary, the results of the current review support the theoretical link between attachment and offending, with the majority of offenders being insecure in their attachment style. Exploratory subgroup analyses suggested that whilst insecure attachment is also associated with psychiatric disorder in non-offending populations, offenders with mental disorder tend to be more dismissive in their attachments whereas psychiatric controls tend to be more preoccupied. Violent offenders were noted to be less secure in their attachments than non-violent offenders, and there is also some suggestion that violent offenders and rapists are more dismissive in their attachment style, whereas child sexual offenders tend to be more anxious. Given that mentally disordered offenders were found to be less secure than non-mentally disordered offenders, and violent offenders less secure than non-violent offenders, this could suggest that security of attachment decreases as violence severity and degree of psychopathology increase in offending populations. However, this is very a tentative proposition based on a small number of studies and thus requires further investigation.

This review was limited in a number of important respects; perhaps the biggest shortcoming being the small number of studies available pertaining to the subsidiary analyses. However, some potential trends were identified, and as such recommendations for further research made. Other limitations included the exclusion of studies involving juvenile and female offending samples, and the use of normative control data where studies included in the review did not employ a control group. Whilst it is preferable to use

control data inherent to the study in question, if normative data were not used, a number of otherwise methodologically sound studies would have had to have been excluded thus reducing the number of eligible papers and total  $N$  further. Where normative data was used, efforts were made to obtain data most appropriately matched to the offender groups (i.e. in all instances, normative control data involving adult males was used).

Other limitations were inherent to problems in assessing attachment generally; that is, including studies reporting both categorical and continuous outcomes. This made the process more complex as in the case of studies reporting categorical outcomes, Cramer's  $V$  had to be calculated first in order to allow conversion to  $d$ . The review was also limited in that scores on the fearful dimension could not be included due to lack of convergence with other attachment constructs. This is unfortunate, as four of the studies included in the review reported high scores on the fearful dimension across offender subtypes (i.e. Dutton *et al.*, 1994; Jamieson & Marshall, 2000; Tweed & Dutton, 1998; Ward *et al.*, 1996). However, this issue is a wider problem in the field of attachment measurement, and as such the methodology of the current paper was guided with respect to which constructs were thought to show greatest convergence in order that an overall effect across studies could be observed. It may be that if the problems with measuring attachment are resolved in the future, further meta-analyses will not be faced with such challenges.

Despite its shortcomings, the review also had a number of strengths. Firstly, it was the first to systematically examine the relationship between attachment and offending, as well as addressing the question as to whether insecure attachment is a risk factor for mental health problems, criminality, or both. Great lengths were also taken to include unpublished studies in the review, thus reducing the effect of publication bias. This is a limitation of many meta-analyses which only include published studies, thus potentially suffering from the "file drawer problem" (Rosenthal, 1979). However, it should be acknowledged that not all of the unpublished studies identified initially could be obtained. A further strength was the use of inverse variance weights to reduce the risk of upwardly biased effect sizes relating to small sample sizes. Again, this was a significant undertaking due to the number of effect sizes involved as many studies reported multiple outcomes along a number of attachment dimensions. However, the use of Hedge's formula corrected for potential bias, and as such, the findings can be viewed as more accurate reflections of the true effect sizes.

The findings of this review have a number of clinically relevant implications. Firstly, given that a medium to large effect was noted in relation to insecure attachment and offending, this would suggest that attachment may in fact be a violence risk factor. However, further research (e.g. a longitudinal study) will be required before we can say conclusively that insecure attachment is a risk factor for violence. Nonetheless, the strong association would suggest that clinicians may wish to consider attachment security in violence risk assessment. Some trends have been suggested with respect to attachment pattern in accordance with offender type, with child sexual offenders noted to be more anxious, and rapists and non-sexual violent offenders noted to be more dismissive. Again, this information may be of relevance to violence risk formulation which can then be used to guide interventions and offender risk management strategies.

The findings of this review would also suggest that attachment should perhaps be given more consideration in treatment programmes for offenders. If offenders can be assisted in forming secure attachment bonds this may serve as a protective factor against future violent recidivism. Indeed, Sonkin and Dutton (2003) have made some suggestions as to how attachment theory should be used to guide psychotherapy for domestically violent men. Furthermore, Lawson *et al.* (2006) demonstrated some promising results in their group treatment study of a community sample of perpetrators of intimate partner violence. That is, following seventeen weeks of therapy comprising of a combination of cognitive-behavioural and psychodynamic treatment approaches, there was a significant increase in the proportion of men found to be securely attached as compared with baseline measures. Furthermore, significant reductions in the frequency of partner violence were noted post-treatment. Given that attachment insecurity was found to be a significant issue across offenders in the current review (i.e. not specific to domestically violent men) this would suggest that it may also be useful to consider attachment theory in the treatment of other offender sub-groups.

Despite the fact that a strong association between insecure attachment and offending has now been established, this is only the first step in understanding how those who are insecurely attached go on to commit violent crimes. Given that the prevalence of insecure attachment is quite common in the general population (i.e. approximately 40% would be considered insecure in their attachment orientation) in comparison with offending which is relatively rare (van Ijzendoorn, 1995), the influence of mediating variables must now be considered. As such, this was one of the primary aims of the empirical study presented in Chapter 3.

### **Chapter 3 – Introduction to Present Empirical Study**

As discussed in Chapter 1, violence is a pervasive and increasing problem with multiple costs to victims, perpetrators, and society. Research which furthers our understanding in this area is therefore crucial in order to enable us to begin to consider strategies for prevention. Attachment theory can provide a useful framework for understanding violence, as violence that involves one individual harming another is essentially an interpersonal phenomenon, and how we behave in relationships is thought to be governed by the internal working models developed through our attachment experiences, our capacity to mentalise, and how we function emotionally (Fonagy, 2004).

Insecure attachment has been suggested as a violence risk factor previously, but there was debate in the literature as to whether it was simply a risk factor for psychopathology as opposed to a risk factor for criminality more generally (e.g. Baker & Beech, 2004; van Ijzendoorn *et al.*, 1997). The meta-analysis presented in Chapter 2 demonstrated a strong relationship between insecure attachment and offending even in the absence of psychopathology (i.e. offenders without mental disorder also showed high levels of attachment insecurity when compared with the normal population). Furthermore, given that mentally disordered offenders were found to be less secure than non-mentally disordered offenders, and violent offenders less secure than non-violent offenders, this could suggest that security of attachment decreases as violence severity and degree of psychopathology increase in offending populations. However, this is a tentative proposition based on a small number of studies and thus requires further investigation. There is therefore a need for further research examining attachment in violent offenders both with and without mental disorder.

#### ***Attachment and Violence in Offenders both with and without Mental Disorder***

Research examining the association between insecure attachment and violence has been carried out predominantly with sexual offenders and perpetrators of domestic violence. There have been no empirical studies to date that have examined the attachment styles of violent offenders specifically (i.e. that have excluded sex offenders from the violent offender sample). Where the attachment styles of violent offenders have been considered elsewhere, this has usually been in the context of a control group comparison with sex offenders, and the sample sizes have generally been very small (e.g. Ward *et al.*, 1996). There is therefore a need for research examining the attachment styles of violent offenders as they represent a large proportion of UK prison and secure hospital populations. For example, in prisons in England and Wales, sexual offenders make up only 3% of the total offender population (Cowburn *et al.*, 2008), with the other 97% comprising violent and non-violent offenders. Within forensic psychiatric hospitals, the proportion of sexual offenders is greater, with approximately 50% convicted of a sexual offence (Baker *et al.*, 2006). The remaining 50% in special hospitals are detained as a result of having perpetrated acts of severe violence, and consequently there is a need to better understand the attachment styles of this large offending sub-group.

The current study therefore aimed to explore the attachment styles of violent offenders both with and without mental disorder, as no studies to date have examined attachment in violent offenders exclusively, and there are currently only three studies exploring attachment in mentally disordered

offenders. It was considered important that the mentally disordered offender group be representative of those typically detained in UK forensic psychiatric facilities, thus including those with a diagnosis of schizophrenia, as the limited number of studies examining attachment in mentally disordered offenders to date have focused exclusively on those with primary diagnoses of personality disorder.

### ***The Pathway from Attachment to Violence: The Role of Potential Mediating Variables***

Whilst further study is required in relation to attachment in violent offenders, consideration of other variables such as emotional functioning is also required, as a strong association between insecure attachment and violence does not provide an adequate explanation as to how attachment insecurity leads to criminality. As discussed earlier, insecure attachment is much more prevalent than offending, and consequently the majority of those who would be classified as insecure do not go on to behave violently or break the law. Levinson and Fonagy (2004) hypothesised that deficits in the ability to mentalise may mediate the relationship between insecure attachment and violence and found some support for this, as did Fossati *et al.* (2009) in their large community sample. However, before considering potential mediators in any further detail, it is important to clarify some of the concepts as there is a great deal of overlap in the literature which can lead to confusion.

#### **Defining Potential Mediators**

In Chapter 1, the ways in which insecure attachment may lead to violence were reviewed. That is, how early attachment relationships may influence an infant's mental representations and emotional arousal and thereby impact upon brain development, and how the impact upon brain development (specifically upon the orbitofrontal cortex) influences socially related mental and emotional processes in a way which increases propensity towards violent behaviour.

However, within the literature there are a range of terms referring to various such mental and emotional processes, the definitions of which are often overlapping. Some of these concepts were reviewed briefly in Chapter 1, but for the purposes of the present study it is important to outline and further clarify the following processes commonly referred to, namely: empathy; theory of mind; mentalisation; and emotional intelligence.

#### ***Empathy***

There are several definitions of empathy and a range of models available, but a useful definition is that provided by Cohen and Strayer (1996, p. 988) who state that empathy is "the ability to understand and share in another's emotional state or context." This definition is helpful due to the acknowledgment that empathy involves both cognitive processes (i.e. the ability to understand another's emotional state) as well as an affective capacity (i.e. the sharing of the emotional state of another) (Jolliffe & Farrington, 2004). Empathy has been of much interest in the offender literature, as the presence of empathising abilities is thought to be protective against criminality, whereas the absence of such abilities is thought to be facilitative of offending (Farrington, 1998). A deficit in empathy is thought to increase propensity for violent behaviour as the individual fails to appreciate their victim's distress, and is unable to consider the impact their behaviour will have on others (Blackburn, 1993).

Marshall *et al.* (1995) proposed a model of empathy in relation to offending that is useful in that it describes in more detail how empathy deficits (which can be multi-faceted) can lead to violence. Four stages are proposed:

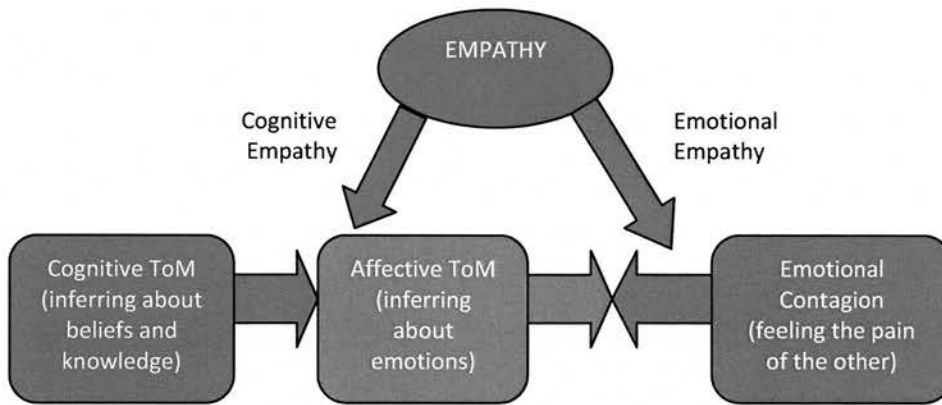
1. *Emotion recognition (also referred to as “affective empathy”)* – the ability to accurately recognise emotions in others. This is crucial, as failure to recognise distress would mean that the remaining stages could not unfold as they are facilitated by successful emotion recognition;
2. *Perspective taking (also referred to as “cognitive empathy”)* – the ability to put oneself in the observed person’s place and to understand things from their point of view;
3. *Emotion replication (also referred to as “emotional contagion”)* – whereby the individual vicariously experiences the same (or similar) emotional experience as the other and reflects this back. This cannot take place without the abilities described in stages 1 and 2, and requires a sufficiently broad emotional repertoire in order to allow replication of whatever emotional state is observed. However, offenders often have a limited emotional range, so even if they have the abilities described in stages 1 and 2, they may lack ability in emotion contagion (i.e. the ability to feel what another is feeling); and
4. *Response decision* – the ability and intention to respond compassionately to the other’s distress in a way that is socially beneficial.

Despite the fact that the relationship between empathy deficits and offending is intuitive, the empirical evidence has been equivocal. Consequently, Jolliffe and Farrington (2004) conducted a meta-analysis examining the relationship between empathy and offending, and observed a relationship between cognitive empathy and offending (medium effect) and affective empathy and offending (small but significant effect).

#### ***Theory of Mind: Affective and Cognitive Theory of Mind***

As discussed briefly in Chapter 1, ToM refers to the cognitive mechanism that allows us to infer the mental states of others (Baron-Cohen *et al.*, 2000). Measures of ToM often refer to “first order” ToM and “second order” ToM, with first order ToM referring to the ability to understand that others may have a false belief, and second order ToM referring to the ability to understand someone else’s thoughts about another person, both of which are largely cognitive processes. However, it has recently been suggested that ToM is not a monolithic process, but rather is multi-faceted, comprising both cognitive abilities (cognitive ToM) and affective abilities (affective ToM) (Shamay-Tsoory *et al.*, 2009, in press).

The concept of affective ToM is quite similar to that of affective empathy, leading some researchers to use the terms interchangeably (Kaland *et al.*, 2002). Shamay-Tsoory *et al.* (2009, in press) have attempted to clarify the relationship between empathy and ToM by proposing the model outlined below in Figure 2.



**Figure 2 – Model of the Relationship between Empathy & ToM (Shamay-Tsoory, *et al.*, 2009, in press)**

“Cognitive ToM” refers to the ability to infer beliefs, whilst “affective ToM” refers to the ability to make inferences about emotions in others, and the process of affective ToM relies on the integration of the emotional and cognitive aspects of empathy. The authors assert that it is the centrality of emotion that distinguishes between the cognitive and affective components of both empathy and ToM.

It is therefore possible that individuals could have affective ToM deficits, but develop their cognitive ToM in an intellectual, non-emotional way based on their social cognitive abilities in the absence of sufficient emotion recognition skills. This would fit theoretically with the model outlined in Figure 2, as cognitive ToM could develop in isolation from other emotional skills. This may help to explain why some studies have failed to find deficits in ToM in offending populations (e.g. Abu-Akel & Abushua’leh, 2004) as the measures employed (i.e. false belief tasks) are thought to assess cognitive rather than affective ToM (Shamay-Tsoory *et al.*, 2006). If cognitive ToM is largely intact in offenders, then these skills could indeed be used in a manipulative manner, with the supposition being that the individuals are deficient in other emotional skills (i.e. emotion recognition, emotional contagion) that might serve to inhibit such behaviour. Some support for this comes from a study by Happé and Frith (1996) who assessed cognitive ToM in conduct disordered children and concluded that they had developed a “theory of nasty minds” given that they were capable of sophisticated antisocial behaviour such as bullying and lying that requires mentalising abilities.

Indeed, further empirical support for this notion comes from an empirical study by Shamay-Tsoory *et al.* (2009, in press) who assessed both the cognitive and affective ToM abilities of criminal psychopaths as compared with a group of normal controls. In line with findings of Abu-Akel and Abushua’leh (2004), Shamay-Tsoory *et al.* did not observe the offender group to be impaired on an assessment of cognitive ToM, but did observe significant impairments in affective ToM.

### ***Mentalisation***

As discussed in Chapter 1, the capacity to mentalise determines an individual’s ability to understand their own mental states and the mental states of others (Fonagy, 2004). The theory suggests that the development of the capacity to represent mental states can become disrupted in insecurely attached children who are often victims of trauma and abuse at the hands of their caregivers (Fonagy, 2004). The

conceptual overlap between mentalisation and ToM was reviewed briefly in Chapter 1, and whilst the abilities described are similar, the aetiology of the ability varies according to the construct in question. However, mentalisation also differs from ToM and empathy in that mentalising ability is seen as being an essential precursor to emotion regulation given that “mentalising implicitly entails a pre-reflective sense of connectedness to the agentive self [where] one has a sense of oneself as an emotional, engaged agent” (Bateman & Fonagy, 2006, p. 4). Furthermore, Bateman and Fonagy (2006) propose that even those with personality disorders who would be considered to have “normal mentalising capacities” can lose their ability to reflect on mental states when emotionally aroused, which is problematic given the emotion regulation difficulties considered inherent to personality disorder.

There is also some suggestion that this “loss” of mentalising ability is more likely when in the presence of attachment figures due to the emotionally charged nature of these relationships (Bateman & Fonagy, 2006). This notion is supported by neuroimaging studies by Bartels and Zeki (2000, 2004) who found that brain regions associated with social judgements and mentalisation are inhibited when the attachment system is activated and the individual feels under threat. Consequently, the mentalisation literature would suggest that even those who are not impaired in their mentalising abilities may have difficulties inferring mental states when emotionally aroused, and that this is all the more likely when the attachment system is activated. Although further empirical validation of this notion is required, the implications are such that even offenders who can mentalise (or have an intact “nasty theory of mind”) may struggle to do so when emotionally aroused, which may increase their propensity for violent behaviour. Furthermore, this could explain the distinction between reactive and instrumental violence in part, with reactive violence occurring when the attachment system is activated leading to emotional arousal and impaired ToM, whereas instrumental violence could occur when the individual is not emotionally aroused and thus able to use their “theory of nasty minds” to their advantage in obtaining their goals. However, the ToM literature does not appear to have considered the possibility that ToM abilities may be impaired under conditions of emotional arousal as yet. Consequently, this is once again simply a proposition that requires empirical validation, but would be of relevance to violence risk formulation if such associations were observed in future research. There are also potential implications in relation to violence towards attachment figures which will be considered below.

### ***Emotional Intelligence (EI)***

Mayer and Salovey (1997) define emotional intelligence as “the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions [in the self and others]...and to reflectively regulate emotions...” (p.4). In relation to emotion regulation, the authors also consider this in relation to self and others, that is, the ability to successfully regulate one’s own emotions but also the ability to respond appropriately to the emotions of others. As discussed in Chapter 1, it has been suggested that offenders have impairments in the orbitofrontal cortex, and this is one of the primary brain regions thought to be implicated in emotional intelligence (Gerhardt, 2004). Some evidence for a relationship between low EI and problem behaviour comes from a large scale study by Brackett (2001) who observed significant inverse relationships between EI and physical aggression, substance misuse,

interpersonal conflict, and weapon ownership (i.e. as EI increased, these problem behaviours reduced) in a large non-clinical non-offending sample.

However, the findings in relation to EI in offender populations are equivocal at present. For example, Hemmati *et al.* (2004) assessed EI using the Emotional Quotient Inventory (EQi; Bar-On, 2002) in a large sample of mixed offenders (i.e. a group comprising both sexual, violent and non-violent offenders) and found that the offending group was not impaired in comparison to normal controls, but rather scored significantly higher in terms of EI. However, the EQi is a self-report assessment of EI, and the authors therefore suggest that the offender scores might be upwardly biased as a result of socially desirable responding, and thus not a true reflection of their EI ability. Furthermore, Puglia *et al.* (2005) found that sexual offenders did not differ significantly from controls as determined by scores on the Mayer-Salovey-Caruso Emotional Intelligence Test Version 1.1 (MSCEIT v1.1; Mayer *et al.*, 1999). They therefore suggest that rather than having stable and global emotional deficits, sexual offenders display emotional deficits specific to the circumstances of their offending. However, Puglia *et al.* (2005) employed a very small sample size (offender  $n=19$ ), and as such the study was substantially under-powered to be able to detect group differences according to Cohen's (1992) formula. A further study of EI in sexual offenders by Moriarty *et al.* (2001) found that controls could be distinguished from offenders in terms of EI using discriminant analyses, with the offenders showing the greatest deficits in their ability to identify and understand emotions. The only other study of EI in offenders available to date is that by Swift (2001) who assessed a sample of domestically violent men using the MSCEIT. In this instance, a significant relationship was noted between lower scores on the perceiving emotions scale and increased frequency of physical violence. It is therefore clear that there is a need for further methodologically sound studies of EI in offending populations given the mixed findings available to date.

In terms of how EI relates to other constructs, it seems that EI and empathy overlap conceptually as Stratton *et al.* (2005) found that all of the subscales on a measure of EI were significantly correlated with all of the subscales on a measure of empathy. This is unsurprising given that all of the steps of Marshall *et al.*'s (1995) model of empathy could be covered by the definition of EI. However, EI is also concerned with abilities in emotion regulation whereas empathy is not.

There is also some potential overlap between EI and mentalisation in that Mayer and Salovey's (1997) definition of EI emphasises the ability to reflect on and think about feelings, and mentalisation as defined by Fonagy (2004) requires an ability to form mental representations of emotions and the internal world of the self and others. The development of mentalisation is thought to be closely related to the achievement of abilities in emotion regulation (Taylor *et al.*, 1999), and emotion regulation skills are encapsulated by the definition of EI. It also seems that deficits in both EI and mentalisation may arise from attachment disturbances. This has already been discussed in relation to mentalisation, but there is also some suggestion that disrupted attachments impact on the development of EI (Taylor *et al.*, 1999). Indeed, a significant relationship between attachment security and EI has been observed (Kafetsios, 2004) which is unsurprising given the theoretical relationship suggested between attachment and emotional development. Further empirical studies have also noted a relationship between insecure

attachment and alexithymia, which is defined simply as an impairment in identifying and expressing emotions (Beckendam, 1995; Schaffer, 1993; Scheidt *et al.*, 1999). The alexithymia construct is also considered to be encapsulated within the definition of EI (Taylor *et al.*, 1999), and as such, these studies can be seen as providing additional support for the relationship between attachment security and EI.

#### Current Evidence for Variables Mediating the Relationship between Attachment & Violence

It is possible that attachment theory is relevant to the formulation of violent behaviour in that insecure attachment and its sequelae (i.e. emotional deficits and impaired mentalising abilities) serve as general risk factors where the individual has negative internal working models relating to interpersonal interactions, has problems with affect regulation, and struggles to appreciate the mental states of others. Even where cognitive ToM deficits are not present, the individual may intentionally use these abilities to manipulate and harm others (with their lack of affective empathy not inhibiting them from doing so), or their mentalising capacities may become impaired during times of emotional arousal which they lack the skills to manage and regulate. Support for potential mediators of the relationship between attachment and violence can currently be found in only two studies, both of which are described below.

Fossati *et al.* (2009) examined the relationship between attachment, mentalisation, and impulsive aggressiveness in a large community sample ( $n=637$ ). A significant association was observed between insecure attachment (both anxiety and avoidance), deficits in mentalisation, and impulsive aggression. A regression model indicated that 33% of the variance in aggressiveness was accounted for by these variables, and a path model demonstrated that mentalisation deficits significantly mediated the effects of attachment styles on impulsive aggressiveness. These findings are important as the study involved non-clinical non-offending participants and thus suggest that insecure attachment and deficits in mentalisation are associated with impulsive aggression generally, as opposed to being exclusive to personality disordered individuals. That said, the fact that the sample consisted of university students does raise the question as to whether the findings are generalisable to clinical samples, and the need for replication in clinical samples was stressed by the authors. It would also be of interest to broaden the definition of aggressiveness to include instrumental violence.

In a study involving clinical samples, Levinson and Fonagy (2004) examined attachment and mentalisation using the AAI and found that the mentally disordered offending group were more impaired in their mentalising abilities than a group of non-violent psychiatric controls matched on psychiatric diagnosis. However, the sample size was small (offender  $n=22$ ), and the offending group was mixed with regard to offence type in that it comprised sexual, violent and non-violent offenders. Comparisons were made with respect to mentalisation ability between the violent and non-violent offenders, and the more violent group were found to have the greatest deficits. This would be consistent with the potential relationship between violence severity and attachment insecurity (i.e. as attachment security decreases, violence severity increases) suggested by the fact that violent offenders were found to be significantly less insecure in their attachments than non-violent offenders in the meta-analysis in Chapter 2. Thus, this would suggest that less secure individuals will have greater deficits in mentalisation and therefore a greater propensity for more severe violence as they may, for example,

more readily objectify their victims and disregard their suffering so long as it serves their goals. Despite the fact that this is theoretically intuitive, the relationship between insecure attachment, deficits in mentalisation, and severity of violence requires further empirical validation before any firm conclusions can be drawn. The same can be said for the theoretical links between attachment insecurity and deficits in emotional functioning in offenders as there has been little in the way of empirical research to support the theory as yet.

A further aim of the current study was therefore to explore the relationship between insecure attachment and deficits in emotional functioning in an attempt to begin to consider possible mediators of the relationship between attachment insecurity and violence. Consequently, a cognitive ToM assessment was employed, as well as an assessment of emotional intelligence. The combination of an assessment of ToM and an assessment of EI was thought to be adequate to assess what might be considered “emotional functioning” more generally because when combined, these assessments allow consideration of the ability to infer mental states and other broader aspects of affective functioning as captured by the model of EI. Although a combined measure of cognitive and affective ToM may have been helpful, this was beyond the scope of the current study as measuring affective ToM is more time consuming, and it was felt best that the assessment employed be as brief and simple as possible given the nature of the population. Furthermore, measures of cognitive ToM have been employed previously in offender studies, whereas affective ToM has been measured in only a single paper (i.e. Shamay-Tsoory *et al.*, 2009, in press) where the focus was on psychopathic individuals. Given that the aim of this study was to examine the relationship between attachment and ToM in offenders, something that had not been done previously, a decision was made to employ a cognitive ToM assessment that was both brief and had been used in other studies with violent offenders.

#### ***Attachment and the Nature of Violence Perpetrated***

It therefore seems possible that insecure attachment could be a risk factor for violence, and that mentalisation and emotional functioning could mediate the relationship between attachment insecurity and aggressiveness. However, insecure attachment may also be relevant to violence risk formulation in the case of violence towards members of the perpetrator’s attachment network. As discussed in Chapter 1, it is possible that aggression in the context of attachment relationships corresponds with Bowlby’s (1969) model of three stages of loss. Violence that is reactive or impulsive may be representative of protest and/or despair at the threat of loss. Violence that is instrumental in the context of an attachment relationship may occur following what Bowlby (1969) described as “detachment” in that it is affectionless and purposeful. How this may relate to the nature of attachment insecurity is unclear, but intuitively it would seem that anxiously attached individuals may be more disposed to reactive violence (i.e. an impulsive and aggressive outburst when faced with the threat of separation) whereas avoidantly attached individuals might be more disposed towards instrumental and “affectionless” violence (i.e. using violence with the goal of controlling the attachment figure in a way that they see fit).

A study by Babcock *et al.* (2000) found some support for this in that domestically violent men who were classified as dismissive in their attachment style were significantly more likely to be domineering and controlling in their aggressive behaviours towards their wives in a manner described as “icy and distant”; a pattern that the authors suggest to be representative of instrumental violence. The domestically violent men categorised as preoccupied on the other hand were much more likely to behave aggressively towards their wives in a way that would be considered reactive (i.e. angry outbursts were noted in an attempt to maintain their wives’ proximity). Further support for the relationship between anxious attachment and reactive violence comes from a study by Lafontaine and Lussier (2005) who observed that anxiously attached domestically violent men were more likely to become violent because of their chronic anxiety over rejection and abandonment in close relationships, and so anger and violence were used in an attempt to maintain the relationship. If this phenomenon has been observed in aggression that occurs in romantic attachments, then it seems possible that it could also be observed in violence that occurs in the context of non-romantic attachments (e.g. a son could become angry and then violent towards a parent because of fear of abandonment).

However, the link between attachment insecurity and the nature of violence perpetrated is in no way clear cut as Fossati *et al.* (2009) found significant relationships between reactive aggression and both attachment anxiety and avoidance. It also seems that the literature on mentalisation could offer some answers as to why offenders are often violent towards their attachment figures given that mentalising capacities are thought to be reduced when the attachment system is activated (Bateman & Fonagy, 2006). Consequently, this is an area requiring further research, and as such, whether there are patterns among those who perpetrate violence towards members of their attachment network remains unclear and exploration is warranted.

The current study therefore had a final aim of considering attachment in relation to victim choice (i.e. whether the individual had ever been violent towards a significant other or not) in order to begin to explore whether any patterns exist that may aid risk formulation in the case of violence towards attachment figures. Whilst the potential relationship between attachment insecurity and reactive versus instrumental violence towards attachment figures warrants exploration as this too would aid risk formulation, this was beyond the scope of the current project as it is difficult to classify acts of violence as reactive or instrumental (and indeed in some cases it can be mixed) based on file information alone. Consequently, the present study simply aimed to begin to explore attachment patterns in relation to victim choice in order that recommendations for further research could be made.

## **AIMS & HYPOTHESES**

### ***Aims***

The aim of this study was to examine attachment style and emotional functioning in non-sexual violent offenders both with and without a diagnosis of mental disorder. Emotional functioning was defined as consisting of both the broad range of abilities encapsulated by the construct of emotional intelligence, as well as the ability to infer mental states (i.e. cognitive ToM). This was the first study to examine attachment and emotional functioning in violent offenders specifically, as well as the first to make a direct comparison between violent offenders with and without a diagnosis of mental disorder.

The study also aimed to begin to explore whether attachment pattern was related to victim choice, that is, whether an individual had ever been violent towards a significant other or not.

### ***Research Questions & Hypotheses***

1. It was hypothesised that the majority of the sample would show high levels of attachment anxiety and/or avoidance (i.e. be insecurely attached).
2. However, despite expecting high levels of attachment insecurity across the entire sample, it was hypothesised that there may be differences in the anxiety and/or avoidance scores between prisoner and forensic psychiatric populations, with the occurrence of attachment insecurity being potentially greater in the mentally disordered offending group.
3. It was hypothesised that security of attachment would be related to emotional functioning, in that those who were less secure in their attachments would show greater deficits in emotional functioning (i.e. deficits in ToM and EI).
4. This study also aimed to explore whether attachment pattern was related to victim choice (i.e. whether an individual had ever been violent towards a significant other or not). Given that this association had not been examined previously, it was unclear how attachment patterns might relate to victim choice (if at all). This study therefore examined whether there were differences in attachment avoidance and anxiety scores between significant other violent and non-significant other violent groups.

## **METHOD**

### **Design**

Two groups of violent offenders (a mentally disordered offending group, and a non-mentally disordered offending group) completed measures of attachment, emotional intelligence and theory of mind. File information relating to participants' violence history and victim choices was collected for exploration in relation to attachment patterns. A mixed design was employed whereby between-group comparisons were carried out as well as within-group correlational analyses.

### **Participants**

Participants were recruited from The State Hospital (TSH) and The Scottish Prison Service (SPS). The State Hospital is a maximum security forensic psychiatric facility that provides care and treatment for individuals with mental disorder who cannot be cared for in any other setting due to their dangerous, violent or criminal propensities (The State Hospital Annual Report, 2005).

Prisoners were recruited from a single site within the SPS. The prison in question had both a remand hall, as well as a hall for long-term prisoners, the majority of whom were serving a life sentence. Recruitment was carried out within the long-term hall as they were a much less transient population, and all of the individuals there were incarcerated as a result of acts of severe violence (i.e. predominantly murder) thus meaning that they would be more likely meet the study inclusion criteria.

### ***Inclusion & Exclusion Criteria***

Individuals were eligible for inclusion in the study if they

- had perpetrated a serious act of violence towards another person (i.e. caused physical harm/injury), not necessarily resulting in conviction;
- were male and between the ages of 18 & 65;
- (*within The State Hospital*) were resident in any of the continuing care wards (with the exclusion of the learning disability ward) or rehabilitation wards within the hospital, and were deemed as having the capacity to give informed consent to participate in the study by their Responsible Medical Officer (RMO); and
- (*within The State Hospital*) had a diagnosis of any major mental illness. The diagnosis had to conform to an official nosological system such as the Diagnostic and Statistical Manual of Mental Disorders (4<sup>th</sup> edition) (DSM-IV; American Psychiatric Association [APA], 1994) or the International Classification of Diseases-10 (ICD-10; World Health Organisation [WHO], 1992). For the purposes of this study, major mental illness was defined as a *primary* diagnosis of an Axis I disorder according to DSM-IV criteria, and within F-20 – F-48 according to ICD-10 criteria. Additional diagnoses were recorded for the purposes of describing the sample, but these were not taken into account when determining eligibility for inclusion.

Individuals were excluded from the study if they

- had any history of sexual violence;

- suffered from an intellectual disability or had language difficulties that precluded assessment (e.g. non-English speakers); and
- (*within the prison sample*) had a recorded or known diagnosis of mental disorder. For the purposes of this study, mental disorder was defined as any mental illness (as above) or any personality disorder as defined within Axis II of DSM-IV or within F60 – F62.9 of ICD-10.

### ***Power Calculations***

Prospective power calculations were conducted in order to determine the optimum sample size. Hypotheses 1, 2 & 4 relied on *t*-tests to compare groups. Based on Cohen’s (1992) formula, in order to detect a significant difference at power level .80 with a medium effect size, a minimum of 64 participants per group are required (i.e. 128 participants in total). The achievement of a medium effect size was an estimate as this was the first study to examine this area; however, it is generally accepted that the majority of psychological research involves medium effect sizes (Green, 1991).

Hypothesis 3 relied on correlations to examine the relationship between insecure attachment and emotional functioning. It was expected that a medium to large effect would be observed (Kafetsios, 2004), and as such, Cohen’s (1992) formula would suggest that anywhere between 28-84 participants would be required to detect a significant correlation at power .80 with an alpha level of .05.

Whilst 128 participants were required for group comparisons according to the power calculations, obtaining 64 participants from The State Hospital was an ambitious target given that the total population reduced in size from approximately 220 to 140 throughout the duration of the project. Furthermore, the fact that sexual offenders, patients with learning disabilities, and those in the acute admissions ward were also excluded reduced the pool of potential participants further. Efforts were made to obtain as many participants as possible, although it was anticipated that optimum sample size might not be achieved. The same was true for the prison population as studies utilising forensic populations often report small sample sizes due to the fact that it is all the more necessary to ensure informed consent in a population with limited autonomy (Adshead, 2003). This means that other professionals are often involved in the recruitment process which can further limit access to potential participants as they serve a necessary “gate-keeping” function (Bartlett & Canvin, 2003). Nevertheless, even if under-powered, it was felt that the group comparisons would be useful given that this was the first study to involve violent offenders exclusively and to consider victim choice patterns, and was thus largely exploratory in nature with the aim of making recommendations for further research.

### ***Participation Rates***

Within The State Hospital (TSH), 77 patients were identified as meeting the inclusion criteria and deemed capable of providing informed consent by their RMO. All 77 patients were approached and 32 agreed to participate (42% acceptance rate). Within the SPS, 70 prisoners were identified as meeting the inclusion criteria, and all of these individuals were approached by their personal officers as outlined below. The participation rate within the SPS was lower, with only 17 individuals volunteering to take part in the study (24% acceptance rate). The final sample comprised 32 participants from TSH and 17 participants from the SPS.

### ***Sample Characteristics***

Data were collected from 49 male participants. The age range of participants was 22 to 58, and the mean age was 36 years ( $SD = 9.17$ ). The average length of incarceration at time of assessment was 6 years ( $SD = 60.72$  months), but the range was large with the minimum at 4 months and the maximum at 245 months (i.e. 20 years). In terms of index offence, 61% ( $n=30$ ) were incarcerated for murder, 10% ( $n=5$ ) for attempted murder, and 29% ( $n=14$ ) for “other violence” (e.g. assault, assault to severe injury and permanent disfigurement). Across the entire sample, psychopathy had been assessed using the Psychopathy Checklist Revised (PCL-R; Hare, 1991) in 17 cases. The mean PCL-R score was 15.41 ( $SD = 7.30$ , range = 3–33).

Within The State Hospital sample, the most common primary diagnosis was paranoid schizophrenia, which was reported in 75% of the cases ( $n=24$ ). Additional diagnoses included schizophrenia (18.75%;  $n=6$ ), and bipolar affective disorder (6.25%;  $n=2$ ). A further 62.5% ( $n=20$ ) of The State Hospital sample had a secondary diagnosis of personality disorder (PD). The most commonly observed secondary diagnosis was of dissocial (or antisocial) PD which was reported in 50% of cases ( $n=16$ ). Additional diagnoses included borderline PD (6.25%;  $n=2$ ), schizoid PD (3.2%;  $n=1$ ), and narcissistic PD (3.2%;  $n=1$ ). Two participants had a diagnosis of more than one personality disorder, that is, in conjunction with a dissocial PD diagnosis, one individual also had a diagnosis of borderline PD and the other had a diagnosis of narcissistic PD, meaning that 3 participants had a borderline PD diagnosis recorded, and 2 had a narcissistic PD diagnosis recorded. None of the prisoners included in the study had been formally assessed for PD according to their case notes.

### **Procedure**

#### ***Ethical Approval & Funding***

Ethical approval was obtained from The State Hospital’s Research & Development Department which included additional management approval (Appendix 3), The University of Edinburgh’s Clinical & Health Psychology Ethics Panel, The Scottish Prison Service’s Research Access & Ethics Committee (Appendix 4), and The NHS National Research Ethics Service (NRES). Full ethical approval was granted by NRES in July 2008 (REC ref - 08/H0903/49; Appendix 5). Funding for the purchase of one of the measures used in the study (i.e. the MSCEIT) was obtained from The State Hospital’s Research Governance and Funding Committee in October 2008 (Appendix 6).

#### ***Recruitment & Consent – State Hospital Sample***

A letter containing a brief research protocol (Appendix 7) was sent to multi-disciplinary clinical teams caring for patients, including the Responsible Medical Officers (RMOs), within each of the eligible wards. An identified member of the clinical teams (usually the ward psychologist) was then asked to identify individuals meeting the criteria for inclusion in the study. RMOs caring for potential participants identified by clinical teams were then asked to confirm in writing that the individuals identified had the capacity to provide informed consent (Appendix 8). Only those deemed capable of providing informed consent by their RMO were approached regarding the study.

An identified member of the clinical team or key-worker (i.e. named nurse) then approached potential participants in order to describe the project briefly and ascertain whether they would be willing to receive more information about it. Thereafter, those who expressed an interest met with the principal researcher (CH) to read through the information sheet (Appendix 9) and consent form (Appendix 10) to ensure an informed consent process. Participants were given the opportunity to discuss anything that was unclear as well as any concerns they may have had. It was made clear to them that they were not under any obligation to participate, and that their decision to participate or not would have no influence on their care and treatment or any of their legal rights. Participants were informed that all information collected throughout the course of the study would be treated anonymously (except in instances where harm to self or others was indicated as outlined in the information sheet and consent form). Participants were also informed of their right to withdraw from the study at any time without the need to provide reasons for doing so. A suitable time was then arranged to complete the measures with those who consented to take part.

### ***Recruitment & Consent – Prison Sample***

The same process as above was employed with variations where appropriate given the differing nature of the establishments. Letters containing a brief research protocol (Appendix 11) were sent to personal officers (i.e. named prison officers responsible for the case management of allocated prisoners), and the psychology department provided assistance in determining which prisoners met the inclusion criteria. Personal officers made the initial approach and thereafter the principal researcher met with potential participants as above in order to ensure informed consent. The information sheet and consent form used with the prison sample can be found in Appendices 12 and 13 respectively.

### ***Assessment Administration***

Upon completion of the recruitment and consent process, the principal researcher met with participants on a one to one basis in a quiet room within the ward or prison hall. Given the low literacy levels within forensic populations (National Centre for Education Statistics, 1994), the principal researcher remained present throughout in order to offer assistance where necessary. The majority of participants opted to have the measures read aloud to them, and many also requested assistance in recording responses. The process of completing questionnaires by reading them aloud to participants and scribing responses (should the person choose it) is one that is regularly used in routine clinical practice with forensic populations.

### **Measures**

Three assessments were administered with participants in this study during an individual meeting with the principal researcher:

- Experiences in Close Relationships Inventory (ECRI; Brennan *et al.*, 1998, Appendix 14);
- Theory of Mind (ToM) – First Order & Second Order False Belief Tasks (Mazza *et al.*, 2001, Appendix 15);
- Mayer-Salovey-Caruso Emotional Intelligence Test V2.0 (MSCEIT; Mayer *et al.*, 2002, Appendix 16 provides sample items).

Below is a full description of each measure, its psychometric properties, and a rationale as to why it was chosen.

#### Attachment Measure

- ***Experiences in Close Relationships Inventory (ECRI)***

Adult attachment was assessed using the ECRI, a 36 item self-report questionnaire that takes approximately 10 minutes to complete. Participants are asked to read statements pertaining to how they feel in close relationships and to respond on a 7 point Likert scale ranging from 1 (disagree strongly) to 7 (agree strongly). The measure is appropriate for use with forensic populations as the items can be worded so that they refer to relationships in general rather than romantic relationships specifically, of which many offenders may not have had experience (Baker & Beech, 2004). The ECRI has also been used with prisoners in other published research (e.g. Lyn & Burton, 2004). For the purposes of this study, the term “partner” was replaced with “others” in line with the recommendations for assessing adult attachment generally using the ECRI made by Fraley (in press).

The ECRI has two underlying dimensions of anxiety and avoidance which predict patterns of intimacy and independence (Brennan & Shaver, 1995). The anxiety and avoidance sub-scales comprise 18 items each, and following recoding of some reverse scored items, item responses are summed to produce total scores for each sub-scale. Higher scores indicate higher levels of attachment anxiety and avoidance. Both sub-scales have good internal consistency as Brennan *et al.* (1998) reported Cronbach’s alpha coefficients of .94 and .91 for the anxious and avoidant scales respectively. Independent studies have reported similarly high alpha coefficients (e.g. Mauricio *et al.*, 2007). Furthermore, Fraley *et al.* (2000) used item response theory to assess the relationship between item responses and underlying traits on a number of widely used measures of adult attachment. They found the ECRI scales to have “...test information functions that were clearly higher than those of the other attachment scales. This observation suggests that [the ECRI] may be preferable to alternatives” (p. 357).

In addition to two dimensional scoring, an SPSS algorithm (Brennan *et al.*, 1998, pp.71-73) can be used to assign participants to one of the four adult attachment style categories on the basis of their anxiety and avoidance scores. The four categories (secure, fearful, dismissive, and preoccupied) are concordant with recent elaborations of Bowlby’s (1969, 1973, 1980) attachment theory (Cassidy & Shaver, 1999). In order to be categorised as secure, an individual must obtain low scores on both the anxiety and avoidance dimensions. Such individuals have the capacity to form and maintain stable relationships (Kirkpatrick & Davis, 1994), whereas those categorised as fearful, preoccupied or dismissive would be predicted to have relationship difficulties as a consequence of their insecure attachment style (Morrison *et al.*, 1997). An individual would be categorised as preoccupied in their attachment if they obtained a high anxiety score and a low avoidance score. High avoidance scores and low anxiety scores, on the other hand, lead to a dismissive classification. High scores on both the anxiety and avoidance dimensions lead to a fearful classification.

In summary, the ECRI was selected for use in this study due to its strong psychometric properties, the fact that it can be used to refer to close relationships in general (making it more appropriate for use with forensic populations), and the option for both dimensional and categorical scoring. Whilst dimensional scoring is preferred and was utilised in all primary analyses, it was also considered useful to be able to describe the attachment distribution of the sample categorically given that many previous studies in this area report categorical outcomes, thus allowing for a more direct comparison.

### Assessments of Emotional Functioning

Two measures of emotional functioning were used in this study as emotional deficits as well as problems with mentalisation are thought to be potential consequents of insecure attachment and may thus increase an individual's propensity for violence (Fonagy & Target, 1999; Levinson & Fonagy, 2004). Fonagy's measure of mentalisation (i.e. the "Reflective Function Scale", Fonagy *et al.*, 1998) could not be employed in this study due to the extensive training required to use the measure and the length of time it takes to complete (i.e. 1-3 hours of interview per participant and approximately 6 hours of transcription and coding). The alternative was to measure theory of mind. Affect regulation and the ability to recognise and understand emotions can be measured compositely under the construct of emotional intelligence (EI). The specific assessment tools are described below.

- ***Theory of Mind (ToM) – First Order & Second Order False Belief Tasks***

Cognitive ToM was assessed using the first order and second order false belief tasks outlined by Mazza *et al.* (2001). This involved reading four short stories to each participant and then asking them two questions in relation to each story. First-order false belief stories require participants to make an inference about the state of the world. Second-order stories assess the participant's ability to understand a false belief about the belief of another character. The two questions which follow each story then relate to the mental state of one of the characters (ToM question) and the participant's comprehension of the material (control question). Scoring for all questions was on a pass or fail basis, with a pass for each story requiring correct answers on both the ToM and control question. Consequently, the minimum total score was zero, and the maximum was four. All four stories were administered to each participant, a process that takes approximately five to ten minutes to complete.

This method of assessing ToM has been used with individuals with a diagnosis of Schizophrenia (e.g. Mazza *et al.*, 2004) and with offending populations (e.g. Murphy, 1998; Murphy, 2007).

- ***Mayer-Salovey-Caruso Emotional Intelligence Test V2.0 (MSCEIT)***

EI was assessed using the MSCEIT V2.0. This is an ability based measure that takes 30-40 minutes to complete, and provides a composite total score from two area scores, that is, "experiential" EI (the ability to process emotional experiences, compare these to other related experiences, and appreciate how the emotion interacts with thought) and "strategic" EI (the "degree to which one can understand emotional meanings, their implications for relationships, and how to manage emotions in oneself and others"; Mayer *et al.*, 2002, p. 14). The two area scores are derived from scores across four domains, with experiential EI a composite of perceiving emotions and facilitating thought, and strategic EI a composite of understanding and managing emotions:

1. *Perceiving emotions* - the ability to recognise emotion in oneself and others;
2. *Facilitating thought* - the ability to “generate, use, and feel emotion as necessary to communicate feelings, or employ them in other cognitive processes” (Mayer *et al.*, 2002, p.7);
3. *Understanding emotions* – the ability to make sense of information related to emotions, “...how emotions combine and progress through relationship transitions, and to appreciate such emotional meanings” (Mayer *et al.*, 2002, p.7); and
4. *Managing emotions* – the ability to regulate emotions in oneself and others. In relation to managing emotions in others, this is the ability to respond appropriately when faced with an individual who is distressed, for example.

This assessment was designed for use with adults aged 17 years and above. Normative data are available from a sample of 5,000 individuals (Mayer *et al.*, 2002). Furthermore, given that this tool is an ability based assessment (and the only one of this kind) rather than a self-report instrument, it is not susceptible to bias as a result of socially desirable responding (Paulhus, 2002) in the same way that other self-report measures of EI are (e.g. the Emotional Quotient Inventory; EQi, Bar-On, 2002). This measure has therefore been used in other research with offenders (e.g. Swift, 2001) and is considered appropriate for use within this population.

In terms of internal reliability, the authors report split-half reliabilities for the normative sample’s total score of .91, and ranging from .79 to .91 for the four branch scores (Mayer *et al.*, 2003). The MSCEIT has also been found to have predictive and discriminant validity for social deviance when compared with other measures of personality and well-being (Amitay & Mongrain, 2007). It is therefore regarded by independent researchers as an objective measure of emotional intelligence that is both valid and reliable (Amitay & Mongrain, 2007).

### ***File Data Collection & Coding***

Case files were reviewed and information relating to each participant’s violence history examined in order to categorise them as ever having been violent towards attachment figures or not (i.e. category 1 = individual has caused physical harm towards a significant other, category 2 = individual has never caused physical harm towards a significant other, but has caused physical harm to non-significant other(s)). Information regarding the presence or absence of mental disorder, psychopathy, and personality disorder was also collected during the case note review where available.

For the purposes of this study, a significant other was defined as an immediate family member or romantic partner. A non-significant other was therefore considered to be any individual who did not fall into either of these categories (e.g. strangers, staff members, acquaintances).

### *Statistical Analysis*

Data were analysed using SPSS (version 15.0). An SPSS algorithm (Brennan *et al.*, 1998) was used to sum and categorise participants' attachment styles based on their ECRI anxiety and avoidance scores (i.e. once scored, each participant had a continuous attachment anxiety score, a continuous attachment avoidance score, and was assigned a single attachment category on the basis of these scores according to the algorithm).

Hypotheses 1 and 2 were investigated primarily using *t*-tests. Firstly a one sample *t*-test comparing the entire offending sample to the normative ECRI data reported by Ditzen *et al.* (2008) was carried out in order to assess the degree of attachment insecurity as compared with normal controls. The mentally disordered offending group were then compared with the non-mentally disordered offenders in terms of attachment anxiety using an independent samples *t*-test. This was then repeated with respect to attachment avoidance scores. Finally, the categorical attachment distributions of both offending samples were compared using chi-square statistics.

Hypothesis 3 was investigated using Pearson product moment correlations to test the relationships between attachment anxiety and EI across the entire offending sample. These analyses were then repeated with respect to attachment avoidance. The initial plan of analysis also involved the use of correlations to assess whether there was a relationship between attachment insecurity and ToM. However, the ToM data were found to be non-normally distributed to an extent that could not be corrected through transformations. As such the plan for analysis was changed to compare those who were "low ToM" scorers with "high ToM" scorers in terms of attachment using *t*-tests. The rationale for this is described in the results section, and the implications considered in the discussion.

Hypothesis 4 was investigated using independent samples *t*-tests to compare the significant other violence group with the non-significant other violence group in terms of attachment avoidance and attachment anxiety scores. Again, the categorical attachment distributions of both sub-groups were also compared using chi-square statistics.

## **RESULTS**

### ***Preliminary Statistical Analyses***

Preliminary analyses were conducted in order to evaluate the data against assumptions of normality. This was assessed via the examination of histograms and also through the use of the Shapiro-Wilk statistical test (it is recommended that the Shapiro-Wilk test is utilised for sample sizes of less than 50; Field, 2005). Results from the Shapiro-Wilk test indicated that all of the variables were normally distributed, except the total ToM score which was non-normally distributed ( $p < .05$ ). However, whether the deviation from normality as indicated by significance on this test is large enough to bias statistical analyses has been questioned (Field, 2005). Consequently, data were further analysed by evaluating two key components of normality, that is, the degree of skewness and kurtosis present. The following formulae (presented in Figure 3) were used to standardise the reported values for skewness and kurtosis by converting them into z-scores:

$$Z_{skewness} = \frac{S}{SE_{skewness}} \qquad Z_{kurtosis} = \frac{K}{SE_{kurtosis}}$$

**Figure 3 – Formulae for Converting Skewness and Kurtosis Values into z-Scores**

Where  $S$  is the reported value for skewness,  $K$  is the reported value for kurtosis, and  $SE$  is the standard error (Field, 2005). The  $z$  scores can then be compared against known values for the normal distribution, whereby a  $z$  score greater than 1.96 would be considered significant at  $p < .05$  (Field, 2005). Analysis of the data using these formulae did not indicate that significant kurtosis was present in any variable, however, the total ToM score was found to have significant negative skewness ( $z = -4.98$ ,  $p < .001$ ).

### ***Data Transformations***

In cases where normality assumptions are violated data transformation is recommended in order to reduce the impact of extreme values and correct for distribution problems (Tabachnick & Fidell, 2001). The same transformation is carried out on each of the values within a variable in order that relationships between scores are not altered as a result (Field, 2005).

Two common types of data transformation were carried out on the variable found to be non-normally distributed (i.e. the total ToM score), that is, square root transformation and log transformation (N.B. the use of log +1 was not necessary because even though zero values were possible, the actual range was 1 to 4). However, prior to conducting these transformations the ToM data had to be reversed as a result of the negative skew, and then reversed back following the transformations (Field, 2005). The transformed variables (i.e. both the log and square root transformations) were then assessed via histograms, the Shapiro-Wilk test as above, and by evaluating the degrees of skewness and kurtosis. Unfortunately neither of the transformations were effective as the Shapiro-Wilk test was significant in both instances ( $p < .05$ ). Evaluations of skewness (by converting the transformed variables into  $z$  scores as above) also indicated that significant negative skew remained within the both the log transformed ToM variable ( $z = -4.39$ ,  $p < .001$ ) and the square root transformed ToM variable ( $z = -4.33$ ,  $p < .001$ ).

Given that the original plan of analysis was to use the total ToM score for correlations in relation to hypothesis 3, the use of equivalent non-parametric tests was considered (e.g. Spearman's R, Kendall's tau). However, there was concern that even these non-parametric tests would be compromised given the extreme negative skew, and the limited range of scores (i.e. minimum of 1 and maximum of 4). In order to make use of the data in some way to begin to consider whether attachment insecurity was related to deficits in theory of mind, individual ToM scores were dichotomised into "high" and "low" categories (with a score of 1 or 2 = "low" and a score of 3 or 4 = "high") and differences in attachment security across the two groups were investigated using *t*-tests. The implications of this are considered in the discussion.

### ***Descriptive Data***

Descriptive data regarding the ECRI, MSCEIT and ToM assessments for both The State Hospital (TSH; *N*=32) and prisoner (SPS; *N*=17) samples are presented in Tables 10 to 14, as well as normative data where relevant. The mean score for each variable and the standard deviation (*SD*) are described. In the section relating to attachment outcomes, categorical data from the ECRI are also described, thus indicating the proportion of the sample classified as secure, fearful, preoccupied, or dismissing in their attachment.

**Table 10 – Adult Attachment Descriptive Data based on ECRI (Continuous Outcomes)**

<b>Sub-Scale</b>	<b>TSH Sample Mean (SD)</b>	<b>SPS Sample Mean (SD)</b>	<b>Normative Data Mean (SD)<sup>1</sup></b>
<b>Attachment Anxiety</b>	2.77 (1.07)	2.76 (1.16)	2.01 (0.72)
<b>Attachment Avoidance</b>	3.22 (1.08)	3.41 (1.07)	2.39 (0.86)

On the basis of the descriptive data presented in Table 10, it is clear that higher levels of attachment anxiety and avoidance were observed in both offender groups in comparison to that observed in a normative sample. Furthermore, the two offender groups did not appear to differ much with respect to attachment anxiety or avoidance. However, the levels of attachment avoidance were noted to be greater than the levels of attachment anxiety in both offender groups, even though the level of attachment anxiety would still be considered high in comparison to that observed in non-clinical, non-offending controls.

**Table 11 – Distribution of Categorical Attachment Classifications based on ECRI**

<b>Attachment Category</b>	<b>Total Sample n (%)</b>	<b>TSH n (%)</b>	<b>SPS n (%)</b>	<b>Normative Data (%)<sup>2</sup></b>
<b>Secure</b>	15 (30.6%)	10 (31.3%)	5 (29.4%)	49%
<b>Preoccupied</b>	1 (2.0%)	1 (3.0%)	0 (0%)	12%
<b>Dismissing</b>	19 (38.8%)	11 (34.4%)	8 (47.1%)	21%
<b>Fearful</b>	14 (28.6%)	10 (31.3%)	4 (23.5%)	18%

<sup>1</sup> Based on normative data for a sample of non-clinical non-offending adult males as reported by Ditzen *et al.* (2008)

<sup>2</sup> Based on normative data as reported by Sainsbury (1999)

As detailed in Table 11, the majority of the sample when considered as a whole were categorised as insecure in their attachment (69.4%;  $n=34$ ). This proportion is higher than that observed in the normative sample. Furthermore, higher proportions of offenders were categorised as dismissing and fearful in comparison to normative data. Again, there was little variation in terms of classification when examining the trends across the two offender groups, with the majority classified as either dismissing or fearful. However, a slightly higher percentage of the SPS sample were classified as dismissing in comparison to the TSH sample, whereas the reverse was true with regards to the fearful classification, with a slightly higher proportion of the TSH sample falling into this category.

**Table 12 – Descriptive Data for ToM Measure across TSH, SPS, and Comparative Samples**

	Total Offender Sample	TSH Sample	SPS Sample	Normative Data <sup>3</sup>	Schizophrenic Sample <sup>4</sup>
<b>ToM Measure Total Mean (SD)</b>	3.14 (0.76)	3.09 (0.82)	3.24 (0.66)	—	—
<b>Story 1: Sally &amp; Anne (% Correct)</b>	91.8%	87.5%	100%	100%	45%
<b>Story 2: Cigarettes (% Correct)</b>	95.9%	96.9%	94.1%	100%	54%
<b>Story 3: Ice Cream (% Correct)</b>	67.3%	65.6%	70.6%	100%	43%
<b>Story 4: Burglar (% Correct)</b>	59.2%	59.4%	58.8%	94%	35%

The means and *SDs* in relation to the total ToM score across the entire sample as a whole, and by group, are described in Table 12. The means and *SDs* were similar for the SPS and TSH samples, with the majority scoring approximately 3 out of 4. However, this tells us little about how the samples compare with what would be expected in non-offending populations, and as such this data is also presented in Table 12. However, in the case of normative samples, data are not available in the form of a total score, but rather papers tend to report the percentage of the sample that answered each story correctly. Consequently, Table 12 reports the percentage of the total violent offending sample who scored correctly on each story, as well as the percentages for the TSH and SPS samples as separate groups. Data from a sample of non-violent men with a diagnosis of schizophrenia, as well as normative data, are presented for comparative purposes.

Despite the fact that the data in Table 12 would suggest that the violent offending sample were performing rather adequately (with the majority scoring 3 out of 4), when the data are examined according to outcomes on each story, this appears to be much less the case. Again, there was little difference between the TSH and SPS groups in terms of performance per story, but both groups

<sup>3</sup> Data based on normative data for each story as reported by Mazza *et al.* (2001).

<sup>4</sup> Data based on ToM outcomes on each story in a sample of non-violent participants with a diagnosis of schizophrenia as reported by Mazza *et al.* (2001)

performed poorer than would be expected on stories three and four (the second order tasks) when compared with normative data. Interestingly, both the TSH and SPS samples performed better on every story when compared with a sample of individuals with schizophrenia.

**Table 13 – Descriptive Data for Emotional Intelligence (MSCEIT) for TSH and SPS Samples**

Scale/Sub-scale	Total Sample Mean (SD)	TSH Sample Mean (SD)	SPS Sample Mean (SD)
MSCEIT Total EI	91.34 (14.02)	89.98 (15.55)	93.90 (10.51)
MSCEIT Experiential EI	99.07 (15.43)	97.35 (17.55)	102.32 (10.03)
MSCEIT Strategic EI	87.28 (11.55)	86.72 (12.47)	88.35 (9.86)
<b>MSCEIT Branch Scores:</b>			
Perceiving Emotions	101.47 (14.40)	100.10 (16.26)	104.06 (9.95)
Facilitating Thought	96.75 (15.28)	96.36 (17.44)	97.49 (10.47)
Understanding Emotions	84.03 (11.56)	83.95 (12.26)	84.17 (10.48)
Managing Emotions	90.50 (12.68)	88.66 (12.10)	93.95 (13.40)

MSCEIT scores are standardised in the same way as traditional intelligence scores so that the average score is 100 and the standard deviation is 15. As such, a score of 85 would be one standard deviation below the mean, and at the 16<sup>th</sup> percentile (Mayer *et al.*, 2002). The data presented in Table 13 indicate that the total violent offending sample were slightly below average with respect to total EI score. There is slight variation when comparing the two groups across the various scales and sub-scales, with the SPS sample performing slightly better than the TSH sample in all instances. It is worth noting that upon examination of the branch scores, that for both samples, the poorest performance was in relation to understanding emotions and managing emotions, with the scores in understanding emotions around 85 in both groups (i.e. at the 16<sup>th</sup> percentile).

***Hypothesis 1 Findings: Attachment Security in Offenders as Compared with Normative Data***

It was hypothesised that the majority of the sample would show high levels of attachment anxiety and/or avoidance (i.e. be insecurely attached). The descriptive data presented in Table 11 indicated that the majority of the sample were insecurely attached (69.4%;  $n=34$ ) when the ECRI was used categorically. However, in order to assess this more objectively, one sample *t*-tests were conducted in order to compare the entire sample (i.e. the SPS and TSH groups combined) on the anxiety and avoidance dimensions with the normative data reported by Ditzgen *et al.* (2008), that is, ECRI scores in non-offending males without mental disorder. In relation to attachment anxiety, on average, violent offenders experienced higher levels of attachment anxiety (mean = 2.77,  $SD = 1.09$ ) as compared with non-offending males (mean = 2.39,  $SD = 0.86$ ). This difference was statistically significant,  $t(48) = 2.42, p = .02$ . In relation to attachment avoidance, on average, violent offenders experienced higher levels of attachment avoidance (mean = 3.28,  $SD = 1.07$ ) as compared with non-offending males (mean = 2.01,  $SD = 0.72$ ). Again, this difference was statistically significant,  $t(48) = 8.34, p < .001$ .

### ***Hypothesis 2 Findings: Comparing Attachment Security in TSH and SPS Samples***

It was hypothesised that there may be differences in the scores for anxiety and/or avoidance between prisoner and forensic psychiatric populations, with the occurrence of attachment insecurity potentially being greater in the mentally disordered offending group. As indicated by the descriptive data reported in Table 10, the TSH and SPS samples did not appear to differ much with respect to attachment anxiety or avoidance. The two groups were compared using independent samples *t*-tests with respect to attachment anxiety ( $t(47) = 0.21, p = .98$ ) and attachment avoidance ( $t(47) = 0.58, p = .57$ ) and no significant differences were observed on either dimension. The two groups were then compared with respect to attachment as measured categorically using chi square statistics. Again no significant differences were observed,  $X^2(3) = 1.24, p = .74$ .

### ***Hypothesis 3 Findings: Attachment & its Relationship to Emotional Functioning in Offenders***

It was hypothesised that security of attachment would be related to emotional functioning, in that those who were less secure in their attachments (i.e. reported higher attachment anxiety and/or avoidance) would show greater deficits in emotional functioning.

#### **Attachment & ToM**

As described above, individuals were categorised into either a “high” or “low” scoring ToM group on the basis of their total score. Consequently, ToM data were not analysed using correlations as initially planned, but rather the “high” and “low” ToM groups were compared in terms of attachment anxiety and avoidance using independent samples *t*-tests, with the hypothesis being that the “low ToM” group would be less secure in their attachment than the “high ToM” group.

In relation to attachment anxiety, the “low ToM” group ( $n=9, \text{mean} = 2.76, SD = 0.91$ ) did not appear to differ greatly on average from the “high ToM” group ( $n=40, \text{mean} = 2.77, SD = 1.14$ ). This difference was not statistically significant,  $t(47) = 0.99, p = .69$ . In relation to attachment avoidance, the “low ToM” group ( $\text{mean} = 3.41, SD = 0.98$ ) did not appear to differ greatly on average from the “high ToM” group ( $\text{mean} = 3.25, SD = 1.10$ ). Again, this difference was not statistically significant,  $t(47) = 0.69, p = .60$ .

#### **Attachment & Emotional Intelligence**

As both of the attachment sub-scales and the MSCEIT data were normally distributed, parametric correlations (i.e. Pearson product moment correlations) were utilised. It was hypothesised that as attachment anxiety and avoidance increased, EI would decrease. A correlation matrix is presented in Table 14, with Pearson correlation coefficients (*r*) reported for each pair of variables along with significance levels. Correlations marked with a single asterisk are significant at the 0.05 level, and those marked with a double asterisk are significant at the 0.01 level.

**Table 14 – Attachment & Emotional Intelligence Correlation Matrix**

<i>VARIABLE</i>	<b>Attachment Anxiety <i>r, p value</i></b>	<b>Attachment Avoidance <i>r, p value</i></b>
<b>MSCEIT Total</b>	-0.33 <i>p = .01*</i>	-0.27 <i>p = .03*</i>
<b>MSCEIT Experiential EIQ</b>	-0.31 <i>p = .02*</i>	-0.16 <i>p = .13</i>
<b>MSCEIT Strategic EIQ</b>	-0.23 <i>p = .06</i>	-0.21 <i>p = .08</i>
<b>Branch 1: Perceiving Emotions</b>	-0.40 <i>p = .002**</i>	-0.19 <i>p = .09</i>
<b>Branch 2: Facilitating Thought</b>	-0.22 <i>p = .06</i>	-0.15 <i>p = .15</i>
<b>Branch 3: Understanding Emotions</b>	-0.06 <i>p = .35</i>	-0.16 <i>p = .13</i>
<b>Branch 4: Managing Emotions</b>	-0.39 <i>p = .003**</i>	-0.21 <i>p = .08</i>

Significant correlations between attachment anxiety and total EI were observed, as well as significant correlations between attachment avoidance and total EI. The negative direction of the correlations was indicative of an inverse relationship as predicted (i.e. as attachment anxiety and avoidance increase, EI decreases). Further exploration of the branch scores revealed strong associations between attachment anxiety and two particular components of EI (i.e. perceiving and managing emotions) as these correlations were significant at  $p < .001$ . Again, an inverse relationship was noted, with higher attachment anxiety scores strongly associated with poorer abilities in perceiving and managing emotions as measured by the MSCEIT.

***Hypothesis 4 Findings: Attachment Pattern and Victim Choice***

Exploratory analyses were carried out in order to begin to consider whether attachment pattern was related to victim choice (i.e. whether an individual had ever been violent towards a significant other or not). Based on file information, participants were split into two groups of those who had any history of physical violence towards attachment figures (46.9%;  $n=23$ ), and those who had never been violent towards a significant other (53.1%;  $n=26$ ). Independent samples *t*-tests were carried out to examine whether differences in attachment anxiety and avoidance were present between the two groups.

Based on examination of descriptive statistics, there appeared to be little difference in terms of attachment anxiety or avoidance between the two groups (see Table 15).

**Table 15 – Victim Choice Groups – Descriptive Statistics**

	<b>Group 1: Positive History of Violence towards Attachment Figures</b>	<b>Group 2: No History of Violence towards Attachment Figures</b>
<b>Attachment Anxiety, Mean (SD)</b>	2.70 (1.04)	2.83 (1.15)
<b>Attachment Avoidance, Mean (SD)</b>	3.36 (0.91)	3.23 (1.20)

No significant differences were observed with respect to attachment anxiety ( $t(47) = .423, p = .674$ ) and attachment avoidance ( $t(47) = .377, p = .708$ ) when the two groups were compared using *t*-tests. The two groups were also compared with respect to attachment as measured categorically using chi square statistics. Again no significant differences were observed,  $X^2(3) = 3.04, p = .39$ .

## **DISCUSSION**

### ***Summary & Interpretation of Findings***

The aim of the present study was to examine attachment style and emotional functioning in non-sexually violent offenders both with and without a diagnosis of mental disorder. This was the first study to examine attachment and emotional functioning in violent offenders specifically, as well as the first to make a direct comparison between violent offenders with and without a diagnosis of mental disorder. In addition, the study also began to explore whether attachment pattern was related to victim choice, that is, whether an individual had ever been violent towards a significant other or not.

Consistent with the findings of previous research, the majority of the sample (approximately 70%) were insecurely attached when assessed using the ECRI categorically. When compared with normative ECRI data across the anxious and avoidant dimensions, the violent offender sample were significantly more anxious and avoidant in their attachments than non-offending controls. Again, this is consistent with previous research, and the findings of the meta-analysis reported in Chapter 2.

Given that a small to medium effect was observed when comparing offenders with mental disorder to those without in terms of attachment in the meta-analysis, it was hypothesised that the mentally disordered violent offenders in the present study may be more insecure in their attachments than the non-mentally disordered violent offenders. This was not found to be the case, as comparisons between the two groups in terms of attachment as measured both categorically and dimensionally using the ECRI did not reveal any significant differences. Rather, the levels of insecurity were similarly high across both groups, which would be consistent with the notion that insecure attachment is associated with criminality more generally as opposed to simply being a risk factor for mental disorder.

The findings from the meta-analysis would suggest however, that those who offend in combination with having a diagnosis of a mental disorder are less secure in their attachments. The fact that this was not supported by the findings of the current study could simply be as a result of being under-powered. To detect a small to medium effect, anywhere between 64 to 393 participants per group would be required according to Cohen's (1992) formula in order to find a significant difference at the recommended power level of .80 and alpha level of .05. Furthermore, the prison sample was screened for mental disorder solely on the basis of case note review and discussions with staff during the recruitment process. The employment of objective screening measures for mental illness and personality disorder (e.g. The Structured Clinical Interview for DSM-IV Axis I Disorders: Clinician Version; SCID-CV, First *et al.*, 1996, and The Structured Clinical Interview for DSM-IV Axis II Personality Disorders; SCID-II, First *et al.*, 1997) would have improved the reliability of considering a prisoner to be part of a "non-mentally disordered" offending group, particularly given the high prevalence rates of mental disorder in prison populations. For example, some studies report that approximately 16% of prisoners suffer from a mental illness (Mental Health Foundation, 1999) and others report prevalence rates for personality disorder in prison populations from anywhere between 7.3% (Gunn *et al.*, 1991) to 64% (Singleton *et al.*, 1998). Unfortunately, measures such as the SCID-CV and SCID-II are very time-consuming and thus inclusion of such was deemed beyond the scope of the current project. Furthermore, assessing for

mental disorder within the prison population would have added an additional layer of ethical complexity due to the possibility of detecting difficulties that were previously undiagnosed. Nonetheless, the present study established that violent offenders (including those with mental illness as well and those with secondary diagnoses of personality disorder) have significant difficulties with attachment, with high levels of attachment anxiety, but even greater levels of attachment avoidance. Again, this high level of attachment avoidance is consistent with the findings from the meta-analysis which suggested that violent offenders tend to be more dismissive in their attachments.

The present study also aimed to begin to explore potential mediators between attachment and violence, because whilst insecure attachment may predispose someone towards violence, it is not sufficient to fully explain offending behaviour in and of itself. Consequently, the relationship between attachment anxiety and avoidance and cognitive ToM was examined by comparing the attachment scores of those who were considered “low ToM” scorers and those considered “high ToM” scorers using *t*-tests. It was expected that those with greater ToM deficits would be less secure in their attachments, but this was not statistically supported. Again, it could be that there was insufficient power to detect any difference, but it seems more likely that the ToM measure was not the most appropriate as there was a significant ceiling effect with the majority of the sample scoring at the top end of the range. Given the limited range of possible scores (i.e. 0 to 4), it is possible that the procedure for assessing cognitive ToM as outlined by Mazza *et al.* (2001) is not sensitive enough when attempting to explore relationships with scores on other assessments. However, deficits in ToM as assessed by second order tasks were noted in both offending sub-groups when compared with the normative data cited by Mazza *et al.* (2001). Although the relationship between attachment and ToM was not statistically supported in this instance, the fact that the present study suggested a degree of deficit in second-order cognitive ToM is important as the evidence with regards to ToM deficits in offenders is equivocal at present.

The entire sample was found to be slightly below average with respect to EI as measured by the MSCEIT, with the greatest deficit in the branch of understanding emotions (16<sup>th</sup> percentile). These findings indicate that in this sample of violent offenders, their ability to function emotionally was somewhat impaired in comparison with the normal population. These findings are consistent with prior research which has demonstrated EI deficits in offending populations (e.g. Moriarty *et al.*, 2001) and stand in contrast with those studies that have found no significant differences between offenders and controls (i.e. Puglia *et al.*, 2005) or that offenders had significantly greater EI abilities when compared with controls (i.e. Hemmati *et al.*, 2004). The fact that deficits were observed in the present study would support the notion that previous studies were methodologically limited.

In terms of the relationship between attachment and EI, Pearson product moment correlations revealed statistically significant associations between both attachment anxiety and avoidance and total score on the MSCEIT; suggesting that as attachment insecurity increases, EI decreases. The observed relationship between attachment insecurity and deficits in EI is consistent with results from a prior study involving a normative sample (i.e. Kafetsios, 2004). These findings would also be consistent with the theory that insecure attachment impacts on emotional development (Mikulincer *et al.*, 2003).

When examining the component scores of the MSCEIT in more detail, highly significant relationships were observed between attachment anxiety and both the perceiving emotions and managing emotions branch scores. This would suggest that where attachment anxiety in particular is concerned, less security is related to greater deficits in the ability to perceive and manage emotions. These relationships could be seen as supportive of Bateman and Fonagy's (2006) supposition that mentalisation abilities, even when intact, can fail under conditions of emotional arousal and/or when the attachment system is activated. The implication of this being, that even if ToM is largely intact in violent offenders, their difficulties in perceiving and managing emotions when the attachment system is activated might hinder their ability to mentalise and thus increase propensity for violence. This is a tentative conclusion, however, and will be discussed below in relation to issues requiring further research. The significant relationship between high attachment anxiety and low abilities in perceiving emotions is also of particular interest in light of the findings of Swift (2001) who observed that frequency of physical violence increased when scores on perceiving emotions were lower in a sample of domestically violent men. It is therefore possible that deficits in the ability to perceive emotions could act as a mediator between insecure attachment and physical violence. However, this will also require empirical validation before any firm conclusions can be drawn.

The fact that the greatest deficits in EI were observed in the domain of understanding emotions has implications with respect to empathising abilities according to Marshall *et al.*'s (1995) model as the violent offenders within this sample would likely find it difficult to successfully complete stage 1 of the empathy process, upon which all of the other stages are dependent. Furthermore, deficits in understanding emotions would also lead to deficits in affective ToM according to Shamay-Tsoory *et al.*'s (2009, in press) model (see Figure 2). This would be consistent with the findings of their empirical study in which they found offenders to have significant deficits in affective ToM.

Finally, the present study aimed to begin to explore whether attachment pattern was related to victim choice, that is, whether an individual had ever been violent towards a significant other or not. No significant differences in attachment anxiety or avoidance were observed when the groups were compared using *t*-tests. Again, it is possible that this is simply a result of having an insufficient sample size to detect a significant difference between the groups. However, it is also likely that the methodology had an impact and could thus be improved upon in future studies. Participants were categorised as either having a history of violence towards attachment figures or not on the basis of file information alone. It is therefore possible that some individuals categorised as having no history of violence towards significant others would in fact have had such a history, as not all such incidents are officially recorded. When designing the study, consideration was given as to whether offender participants should be asked about their violence history as part of the assessment process in an attempt to increase the reliability of categorisation. However, on balance, it was felt that the ethical implications of this outweighed any potential benefits, and as such, anything other than case note review was deemed beyond the scope of the current project. That is, because even if participants were asked to report such data as part of the assessment process, there would be no way of knowing whether the information provided was accurate (i.e. the potential for increasing reliability of categorisation was

uncertain). Asking participants to discuss their violence history would also have increased the ethical complexity of the project due to the increased potential for disclosure of unconvicted offences which would then have had to be reported. Given that this part of the study was highly exploratory, it was decided that file information would be sufficient for an initial examination of any potential relationship between attachment pattern and victim choice. The fact that no significant relationships were observed in this study does not mean that we can conclude that patterns do not exist, particularly given that some patterns between attachment and the nature of violence perpetrated have been observed in the domestic violence literature (e.g. Babcock *et al.*, 2000). Consequently, this will also be discussed below in relation to recommendations for future research.

### ***Clinical Implications***

The present study indicated that violent offenders both with and without mental disorder tend to be insecure in their attachments. This would suggest that attachment should perhaps be considered in violence risk formulation and in the treatment of violent offenders as it is possible that the formation of secure attachment bonds could serve as a protective factor against future violent recidivism. Indeed, Lawson *et al.* (2006) noted an increase in attachment security as well as significant reductions in violence frequency following a group treatment programme for perpetrators of intimate partner violence. It is therefore possible that similar outcomes could be expected if attachment theory were to be applied to the treatment of other offending sub-groups.

The fact that high levels of attachment avoidance were observed in the present sample has implications not only for therapeutic work with violent offenders, but also for all individuals involved in their care and/or responsible for their detention. As discussed in Chapter 1, high attachment avoidance can lead to difficulties with interpersonal relationships due to excessive independence, a fear of closeness, and defensiveness (Bartholomew, 1990; Bartholomew & Horowitz, 1991) and is often associated with externalising problems (Armistead *et al.*, 1992). Such a presentation is likely to make engagement with professionals difficult as the individual is likely to be reluctant to trust others and may even see their withdrawal as self protective (e.g. “if I don’t interact with others then I can’t get hurt”).

The deficits observed in emotional intelligence in the present study would also suggest that the treatment of violent offenders could be enhanced with the inclusion of emotional awareness and regulation training, for example. Given that a significant deficit in understanding emotions was noted, and that this in itself is likely to lead to problems with empathy and affective ToM according to Marshall *et al.*’s (1995) and Shamay-Tsoory *et al.*’s (2009, in press) models, assisting violent offenders in increasing their emotional intelligence could also serve as protective against future violent recidivism.

### ***Strengths and Limitations of the Present Study***

The present study was the first to examine attachment in violent offenders exclusively, which is important given that they represent a large proportion of those incarcerated within prisons and forensic psychiatric facilities within the UK. The fact that initial explorations were made with respect to associations between insecure attachment and potential mediators was also an important step forward in terms of beginning to understand how attachment insecurity might lead to violence. Furthermore, the use of ability based assessments of both ToM and EI was a particular strength given that such measures cannot be biased by defensive reporting or impression management in the way that self-report measures can be, which is of particular importance when assessing offending populations (Paulhaus, 2002).

The present study was however limited in that female offenders were excluded, and there is a need to understand how attachment may relate to offending in this population as well, particularly given that the limited research currently available in this area has focussed largely on male perpetrators. Further limitations of the present study have already been outlined in consideration of the findings, namely: the lack of an objective screening measure for mental disorder within the prison population; the reliance on file information for coding participants in relation to victim choice patterns; and being under-powered to detect group differences where effects sizes are small to medium (i.e. with respect to the difference between offenders with and without mental disorder) and unknown (i.e. with respect to differences in attachment according to victim choice). For both ethical and practical reasons, recruitment of large samples is difficult within forensic populations given the additional layer of complexity in relation to consent when approaching individuals detained against their will, and the consequent requirement for other professionals to serve a “gate-keeping” function (Bartlett & Canvin, 2003) which then places a strain on resources. However, this was the first study to make comparisons involving mentally disordered offenders with both mental illness and personality disorder, and the first examination of potential associations between attachment pattern and victim choice. Thus, even though under-powered with respect to the comparative analyses involving sub-groups, the findings are still of importance as recommendations for future research can be made on the basis of the exploratory analyses conducted as part of this study.

### ***Recommendations for Future Research***

Insecure attachment has been demonstrated to be very prevalent amongst a range of offending populations as described by the meta-analysis in Chapter 2, and in violent offenders in the present study. There is now a need to better understand what might mediate the relationship between attachment insecurity and offending, and both the present study and the two others that have begun to explore this (i.e. Fossati *et al.*, 2009; Levinson & Fonagy, 2004) would suggest that mentalisation and general emotional functioning (in particular the ability to understand and manage emotions) warrant further investigation. The overlap/confusion between ToM, mentalisation, and empathy can make research in this area difficult, and may explain at least in part why findings are often equivocal. Given the degree of variability in mentalisation ability observed between groups in Levinson and Fonagy’s (2004) study which involved very small sample sizes, the use of the Reflective Function Scale (Fonagy *et al.*, 1998)

in order to measure mentalising abilities may be the way forward in future attachment research as it seems that it is sufficiently sensitive, and is also not susceptible to self-report bias.

If associations between attachment insecurity and emotional functioning variables (i.e. mentalisation, understanding and managing emotions) can be demonstrated more consistently in further studies, then future research using regression models or path analyses would be useful in order to test these variables as mediators between attachment insecurity and violence statistically. It would also be of relevance to empirically test Bateman and Fonagy's (2006) proposition that even intact mentalising abilities can become impaired when the attachment system is activated and/or under conditions of emotional arousal.

Further exploration as to potential relationships between attachment insecurity and the form of violence (i.e. victim choice patterns and reactive/instrumental violence) is also required in order to empirically examine the theoretical links suggested in the literature. However, careful consideration will be required with respect to methodological and ethical issues.

Whilst there is still some way to go in understanding the relationship between attachment and violence, both the meta-analysis presented in Chapter 2 and the present study have made a contribution to this promising area of research. It would seem that consideration of both attachment and emotional functioning in the assessment, formulation, and treatment of offenders could currently be suggested as useful to clinicians with the evidence as it stands at present. However, if attachment were to be firmly established as a risk factor for violence through a longitudinal study, for example, and further treatment studies show relationships between increased attachment security and a decrease in aggressive behaviour, then it may soon become essential that attachment is considered when assessing and treating offenders. There are still many unanswered questions, but it will be of great interest within the field of forensic clinical psychology as to what future studies in the area of offender attachment research will reveal.

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## **APPENDICES**

### **Appendix 1 – Screening Checklist for Meta-Analysis**

#### **STUDY:**

<b>Criteria</b>	<b>Tick all that apply</b>
Study is not quantitative in nature (i.e. qualitative design, literature review, book chapter, theoretical paper) or is a single N design	
Does not employ a validated measure of adult attachment (e.g. attachment style determined via clinical judgment or non-specific measure of attachment)	
Sample does not include those who have committed criminal offences (or reported acts that would be serious enough to warrant legal action)	
Study uses only a psychiatric diagnosis to imply an increased likelihood of offending (e.g. psychopathy)	
Where mentally disordered offending sample is included, diagnoses do not conform to a standardised nosological system or are not derived via a diagnostic assessment (e.g. SCID-CV).	
Non-adult male population (e.g. females, juveniles)	
Published in language other than English	
Duplicate publication/data from same sample published in another study already included in the review (if study is listed in dissertation abstracts and is later published, the published paper will be included)	
Study does not contain sufficient information for effect size calculation and the information cannot be obtained from the author	

N.B. Studies will be excluded if they meet any of the above conditions.

**Appendix 2 - Data Extraction form used in Meta-Analysis**

STUDY:

Sample Characteristics
------------------------

Total Number of Participants

---

Number of Groups   
(enter description & size of group(s) below):

---

1.

---

2.

---

3.

---

4.

---

5.

---

6.

**Age Group(s)**  
Adult  Juvenile  Mixed

**Gender**  
Male  Female  Mixed

**If mixed age and/or gender groups can adult males data be separated out?**

**YES/NO**

**Measure(s) Used:**

--

**Descriptive Summary of Findings**

--

**Statistical Data for Meta-Analysis**


### **Appendix 3**

#### **Approval from The State Hospital's Research & Development Department**

Enclosures:

1. Letter of approval from The State Hospital's Research & Development Department
2. Letter of Managerial Approval from The State Hospital's Senior Management Team

Claire Hamill  
Trainee Clinical Psychologist  
The State Hospital

29<sup>th</sup> July 2008

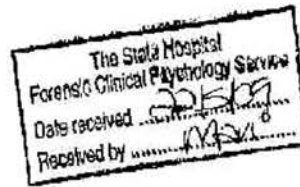
Dear Claire,

**Re: Attachment and Emotional Functioning In Violent Offenders.**

The committee were grateful for your revised proposal and evidence of ethical approval. The amendments in relation to formalising your contact with SPS are welcome and the committee is happy to grant approval for this study. You will need a letter of management approval from Dr Young and I will send him the necessary documentation. The committee would like to take this opportunity to wish you luck with your study, and we look forward to your 6 monthly progress reports that are a condition of the committee approval.

Yours sincerely

Jamie Pitcairn  
R&D Manager  
The State Hospital and Forensic Network.



Claire Hamill  
Psychology Assistant  
Psychology Department  
The State Hospital

Date 18 May 2009  
Our Ref SCY/aa  
Your Ref  
Enquiries to Ann Abernethy  
Ext No 2221

Dear Ms Hamill

**Re: Attachment and Emotional Functioning in Violent Offenders**

Having considered the views of the Research Committee and noted that you have obtained Ethical Approval, I write to give you Managerial Approval to proceed with your project. This is subject to you fulfilling the requirements of the Ethics Committee and of the State Hospital Research Committee.

May I take this opportunity to wish you every success in your endeavour.

cc. Jamie Pitcairn, Research and Development Manager.  
Dr Lindsay Thomson, Medical Director.

## **Appendix 4 – Ethical Approval from the Scottish Prison Service**

Enclosure:

1. Letter of approval from the Scottish Prison Service Research Access and Ethics Committee



## HEADQUARTERS

### Management Information

Calton House  
5 Redheughs Rigg  
EDINBURGH  
EH12 9HW

Direct dialling: 0131 244 8771  
Switchboard: 0131 244 8745  
Fax: 0131 244 3651

Claire Hamill  
Trainee Clinical Psychologist  
Psychology Department  
The State Hospital  
110 Lampitts Road  
Lanark  
ML11 8RP

2 June 2009

Dear Claire

### ATTACHMENT AND EMOTIONAL FUNCTIONING IN VIOLENT OFFENDERS

You have indicated that you require a letter which verifies that research access to Scottish Prisons to conduct the above study has been approved by the SPS Research Access and Ethics Committee.

Your project was first considered at the RAEC meeting in February 2008, after which clarification was sought on logistics and methodology. The points raised were subsequently dealt with to the satisfaction of the Committee and I wrote to you by e-mail on 2 September to indicate that final clearance had been approved.

This letter gives formal approval to proceed with your project in accordance with the standard conditions for research access (attached for ease of reference).

I look forward to receiving a copy of your research report on completion of the study.

Yours sincerely

Jim Carnie  
SPS Research

## **Appendix 5 – NRES Approval**

Enclosure:

1. Letter of approval from the NHS National Research Ethics Service (NRES)



**National Research Ethics Service**

**Northern and Yorkshire Research Ethics Committee**

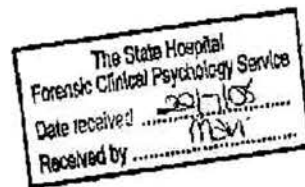
Room 215  
Tel: 0300 Business Centre  
Viking Industrial Park  
Jarrow  
Tyne & Wear NE32 3DT

Telephone 0191 4283645/4283438 Fax 0191 4283432

Bill Hackett (Co-ordinator) e-mail: [bill.hackett@sunpct.nhs.uk](mailto:bill.hackett@sunpct.nhs.uk)  
Helen Wilson (Asst Co-ordinator) e-mail: [helen.wilson@sunpct.nhs.uk](mailto:helen.wilson@sunpct.nhs.uk)

18 July 2008

Miss Claire Hamill  
Trainee Clinical Psychologist  
The University of Edinburgh  
Psychology Department  
The State Hospital  
Carstairs  
Lanark ML11 8RP



Dear Miss Hamill

**Full title of study:** ATTACHMENT AND EMOTIONAL FUNCTIONING IN  
VIOLENT OFFENDERS: IS ATTACHMENT PATTERN  
RELATED TO VICTIM CHOICE?

**REC reference number:** 08/H0903/49

The Research Ethics Committee reviewed the above application at the meeting held on 11 July 2008. Thank you for attending to discuss the study.

**Ethical opinion**

- 1 The Committee has registered minor concern about potential distress to participants and assurances are required that the researcher will be adequately supervised when using the tool.
- 2 The Committee feels that the health and safety of the researcher is of paramount importance and the researcher's employers need to be fully aware of this.

Members of the Committee present gave a favourable ethical opinion (with advice as above) of the above research on the basis described in the application form, protocol and supporting documentation, subject to the conditions specified below.

**Ethical review of research sites**

The Committee agreed that all sites in this study should be exempt from site-specific assessment (SSA). There is no need to submit the Site-Specific Information Form to any Research Ethics Committee. The favourable opinion for the study applies to all sites involved in the research.

**Conditions of the favourable opinion**

The favourable opinion is subject to the following conditions being met prior to the start of the study.

This Research Ethics Committee is an advisory committee to North East Strategic Health Authority

*The National Research Ethics Service (NRES) represents the NRES Directorate within the National Patient Safety Agency and Research Ethics Committees in England*

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission at NHS sites ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

#### Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Application	V5.6	27 June 2008
Investigator CV	Emily Frances Newman	
Investigator CV	Claire Hamill	22 June 2008
Protocol	V6 Project Proposal	22 June 2008
Letter from Sponsor	ECTU Letter of Sponsorship - from Elspeth Currie	26 June 2008
Peer Review	Letter from Mrs Anne Femon, College of Humanities	28 May 2008
Compensation Arrangements	Liability & Professional Indemnity Insurance -AON	20 July 2007
Compensation Arrangements	Clinical Trial Liability Insurance -AON	20 July 2007
Questionnaire: Four first & second order false belief tasks	ToM -Mazza et al 2001	
Questionnaire: Identifying Emotions Sample MSCEIT items	MSCEIT 2 pages	
Questionnaire: Experiences in close relationships Inventory	Brannan, Clark & Shaver 1988	
Participant Information Sheet: Information for Personal Officers	V 1 (SPS)	27 May 2008
Participant Information Sheet: Information for Clinical Teams	V 1 (TSH)	27 May 2008
Participant Information Sheet: Participant Information sheet	V 1 (TSH)	25 May 2008
Participant Information Sheet: Participant Information sheet	V 1 (SPS)	25 May 2008
Participant Consent Form: Consent Form	V 1 (SPS)	25 May 2008
Participant Consent Form: Consent Form	V 1 (TSH)	25 May 2008
Confirmation of initial ethical approval from the Prison Service	From James Carnie	02 May 2008
Patient Capacity to give informed Consent	V 1 RMO Authorisation	27 June 2008

#### Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

#### Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

**After ethical review**

Now that you have completed the application process please visit the National Research Ethics Website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email [referencagroup@nres.npsa.nhs.uk](mailto:referencagroup@nres.npsa.nhs.uk).

**08/H0903/49****Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project.

Yours sincerely

Email: [Helen.Wilson@suntpct.nhs.uk](mailto:Helen.Wilson@suntpct.nhs.uk)

*Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments*

*"After ethical review – guidance for researchers"*

Copy to: Mrs Elspeth Currie  
Edinburgh Clinical Trials Unit  
The Queens Medical Research Institute  
47 Little France Crescent  
Edinburgh  
EH16 4TJ

## **Appendix 6 - Funding Approval for Purchase of the MSCEIT**

Enclosure:

1. Letter of funding approval for purchase of the MSCEIT from the State Hospital's Research Governance and Funding Committee

Medical Division



Claire Hamill  
Psychology Assistant  
Psychology Department  
The State Hospital

Date 21 October 2008  
Your Ref  
Our Ref SCY/aa  
Enquiries to Ann Abernethy  
Extension 2221

Dear Ms Hamill

**Re: Attachment and Emotional Functioning in Violent Offenders Study**

The funding proposal for your project was discussed at a meeting of the Research Governance and Funding Committee and was approved to the maximum of £1,000 order to fund the use of the MSCEIT in the project. There has been a delay in you being notified as a consequence of a system being devised to effectively track expenditure.

The financial code which has been allocated is **DRRENS01**. This code should be used on all invoices and correspondence in respect of expenditure against the funding allocation and should be processed through Jamie Pitcairn, the Research and Development Manager. If further clarification is required please contact Jamie Pitcairn in the first instance.

May I take this opportunity to wish you every success with your project.

Yours sincerely

**Chair of the Research Governance Funding Committee**

cc. Morag Slesser, Head of Psychology.  
Jamie Pitcairn, Research and Development Manager.  
Duncan Chesnutt, Deputy Director of Finance.

## **Appendix 7 – Recruitment Letter (State Hospital Version)**

**Enclosure:**

1. Letter sent to clinical teams containing brief research protocol



Claire Hamill  
Trainee Clinical Psychologist  
Psychology Department  
The State Hospital  
Tel: 01555 840293 (ext 4452)  
Email: [claire.hamill@tsh.scot.nhs.uk](mailto:claire.hamill@tsh.scot.nhs.uk)

## **Information for Clinical Teams – Version 1 (TSH)**

### ***Research Project – “Attachment and Emotional Functioning in Violent Offenders: Is Attachment Pattern Related to Victim Choice?”***

Dear X Ward Clinical Team Member,

You are invited to assist in the identification and recruitment of participants for the above research project. The aim of this letter is to provide you with some information about the study and to outline what will be asked of clinical team members who agree to help out.

#### **Background to the Project**

Claire Hamill (Trainee Clinical Psychologist) is currently working towards the attainment of a Doctorate in Clinical Psychology (D.Clin.Psychol.) in partnership with the University of Edinburgh and The State Hospital. As part of their training, D.Clin.Psychol. trainees are required to conduct a significant piece of independent research and submit this as a thesis. The above research project will therefore be submitted in part fulfilment of the principal investigator’s clinical doctorate, but will also be written up for publication and presented at relevant conferences, etc.

Ms. Hamill has chosen to conduct a research study examining attachment style (i.e. how we function in relationships) and emotional functioning in violent offenders both within The State Hospital and the Scottish Prison Service. Previous studies have demonstrated that attachment style is linked to how we function emotionally, and there is a suggestion that both of these aspects may be related to, or predictive of, violent offending. This study will be the first to empirically examine this question, and to consider how mental health impacts on and interacts with these factors.

#### **Utility of the Research Findings**

The findings of this study should be of value to all organisations working with violent offenders. Examining whether attachment style and/or emotional functioning are related to violence and victim choice will provide information that will enhance and enrich violence risk assessments and offence formulations. This will in turn allow for the identification of additional risk management strategies and so potentially reduce the risk of further violent offending (e.g. via interventions to address any deficits in emotional functioning or to help offenders form more secure attachments). The outcome of this study will also be of particular relevance to the development of the new violence treatment program within the State Hospital. In addition, it is hoped that the results of the study will be of interest to and contribute to service provision both within the State Hospital, the Forensic Network, and further afield.

### **Who has reviewed the study?**

The study has been reviewed and accepted by the following:

- The University of Edinburgh's Clinical & Health Psychology Ethics Panel
- The State Hospital's Research Committee
- The Scottish Prison Service's Research Access & Ethics Committee
- The NHS National Research Ethics Service (NRES)

Full ethical approval was granted by NRES in July 2008 (REC ref: 08/H0903/49)

### **What will patients have to do?**

Those who consent to take part will be invited to attend a single session where they will be asked to complete a brief attachment questionnaire and two assessments of emotional functioning. This session will take place in a quiet room within the ward and should take no longer than 1 hour. If the participant finds it difficult to concentrate for an hour, or would prefer to be seen over a number of shorter sessions, this can also be arranged.

If the participant has any difficulties with reading or writing they can still take part as Ms Hamill will read the questions aloud to them if they choose, or assist with writing down responses. Participants can also be given extra time if required.

### **How can Clinical Teams help?**

Ethics panels hold the view that clinical teams should be involved in the identification and recruitment of research participants, and will not permit researchers to make the initial approach to participants.

Ms Hamill will therefore discuss the project with an identified member of the clinical team (usually the Ward Psychologist) in order to determine which patients meet the study criteria. Responsible Medical Officers (RMOs) caring for potential participants identified by clinical teams will then be asked to confirm in writing (a form for signing will be provided) that the individuals identified have the capacity to provide informed consent. Only those deemed capable of providing informed consent by their RMO will be approached regarding the study.

An identified member of the clinical team or key-worker will then be asked to approach potential participants and provide them with a participant information sheet describing the project and what they will be required to do in order to participate. Potential participants will be given up to a week to consider whether they wish to participate. If they express willingness to take part then the researcher will arrange to meet with them and go through the information sheet and consent form to ensure an informed consent process. Patients will have the opportunity to discuss anything they are unclear about or any concerns they may have. It will be made clear to them that they are not under any obligation to participate and that their decision to participate or not will have no influence on their care and treatment or any of their legal rights. They will also be reassured that the information collected will be treated as confidential. Participants will also be informed of their right to withdraw from the study at any time, and without giving reasons.

Clinical team members who are not directly involved in the selection and recruitment process can assist by facilitating access to rooms, etc and having an awareness of the study in case any participants have questions that need to be directed back to the researcher.

### **What are the inclusion/exclusion criteria?**

#### ***Inclusion Criteria***

Individuals will be eligible for inclusion in the study if:

- They have perpetrated a serious act of violence towards another person (i.e. caused physical harm/injury), not necessarily resulting in conviction

- They are male and between the ages of 18 & 65
- (within the State Hospital) They are resident in any of the continuing care wards (with the exclusion of the Learning Disability ward) or rehabilitation wards within the hospital and have been deemed as having the capacity to give informed consent to participate in the study by their RMO.
- (within The State Hospital) They have a diagnosis of any major mental illness. The diagnosis should conform to an official nosological system such as DSM-IV (APA, 1994) or the International Classification of Diseases-10 (ICD-10; World Health Organisation [WHO], 1992). For the purposes of this study, major mental illness is defined as a *primary* diagnosis of an Axis I disorder according to DSM-IV criteria, and within F-20 – F-48 according to ICD-10 criteria. Additional diagnoses will be recorded for the purposes of analysis, but these won't be taken into account when determining eligibility for inclusion (i.e. it is only the primary diagnosis that will be considered).

### ***Exclusion Criteria***

Individuals will be excluded from the study if:

- They have any history of sexual violence
- They suffer from an intellectual disability or have language difficulties that preclude assessment (e.g. non-English speakers).
- (within the State Hospital) They are resident within either the admissions or learning disability ward, or if they have been assessed as not having the capacity to give informed consent to participate in the study by their RMO.
- (within the State Hospital). They do not have a primary diagnosis of major mental illness as defined above.
- (within the Prison sample). They have a diagnosis of mental disorder. For the purposes of this study, mental disorder is defined as any mental illness (as defined above) or any personality disorder as defined within Axis II of DSM-IV or within F60 – F62.9 of ICD-10.

### **How many patients will be involved and when will data collection take place?**

In order to obtain statistical power for the planned analyses, the aim would be to recruit 64 participants from The State Hospital and 64 participants from the Prison Service if possible. Ms Hamill is aware that this will place significant demands on both services, and as such, will do whatever she can to help teams accommodate the project.

Ms Hamill intends to collect data on one day per week between August 2008 and December 2009. She can be flexible as to when is most convenient to meet with participants and access rooms, etc.

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Thank you for taking the time to read this information. Please feel free to contact Ms Hamill on ext 4452 with any questions or if you would like more information.

Claire Hamill  
 Trainee Clinical Psychologist (Lead Researcher)  
 Psychology Department  
 The State Hospital

## **Appendix 8 – RMO Consent Form**

Enclosure:

1. Consent form sent to Responsible Medical Officers caring for potential State Hospital participants in order to ascertain whether they had the capacity to provide informed consent to take part in the study



**Patient Capacity to give Informed Consent – RMO Authorisation**

**Attachment Style and Emotional Functioning in Offenders (REC ref: 08/H0903/49)**

This form relates to a research project titled “Attachment and Emotional Functioning in Violent Offenders: Is Attachment Pattern Related to Victim Choice?” being conducted by Claire Hamill (Trainee Clinical Psychologist). Information about this study has already been circulated to clinical teams.

Mr [ENTER PATIENT NAME] has been identified as meeting the study criteria. Please indicate your view as to whether this patient has the capacity to provide informed consent and sign the form in the space provided.

*Only those deemed capable of providing informed consent by their RMO will be approached and asked whether they would like to take part in the study.*

**PLEASE TICK BOX**

This patient **does not have the capacity** to provide informed consent, and should therefore not be asked to take part in the above research project.

This patient **does have the capacity** to provide informed consent, and can be asked to take part in the above research project.

\_\_\_\_\_  
Name of RMO

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

## **Appendix 9 – Participant Information Sheet (State Hospital Version)**

Enclosure:

1. Participant information sheet (State Hospital Version).



## **Participant Information Sheet – Version 1 – May 2008 (TSH)**

### **Attachment Style and Emotional Functioning in Offenders (REC ref: 08/H0903/49)**

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Talk to others about the study if you wish.

Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

#### **What is the purpose of this study?**

The purpose of this study is to gain a better understanding of attachment style and emotional functioning in offenders. Attachment style develops as a result of our early relationship experiences, and shapes how we later behave in relationships with others as adults. It is thought that our attachment style is linked to how we function emotionally, for example, how good we are at recognising how another person might be feeling. This study will investigate how these things might be linked to offending. This should then give us a clearer understanding of some of the possible reasons behind offending behaviour, which should in turn help to prevent future offending.

#### **Why have I been chosen?**

This study is being carried out at both The State Hospital and within the Scottish Prison Service. Your clinical team has identified you as a potential participant. Your RMO has also given permission for us to approach you.

#### **Do I have to take part?**

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and will be asked to sign a consent form.

If you decide to take part you are still free to withdraw at anytime and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect the standard of care you receive or any of your legal rights.

#### **What will happen to me if I take part?**

You will be invited to come along to a single session where you will be asked to complete a questionnaire and two assessments. This session will take place in a quiet room on your ward and should take no longer than 1 hour. If you find it difficult to concentrate for an hour, or would prefer to be seen for a number of shorter sessions this can also be arranged.

If you have any difficulties with reading or writing you can still take part as the person who comes to see you can read the questions aloud to you if you wish, or help you to write down your answers. You can also be given extra time if you need it.

The researcher will also gather some information about your offending history and your mental health from your records. This information will be kept confidential at all times.

### **What do I do once I've made my decision?**

If you are willing to take part, please read and sign the attached consent form. A suitable time to come and see you to complete the assessments will then be arranged.

### **Will my taking part in the study be kept confidential?**

All information that is collected about you during the course of the study will be kept strictly confidential. Any information about you will have your name removed so that you cannot be recognised from it.

Your RMO will be contacted and told that you will be taking part in the study. If you disclose information during the interview that causes concern about your well-being, or the well-being of others, this information will be shared with your RMO and Clinical Team. When the study is written up to be submitted for publication, all names and identifiers will be removed so there is no possibility of you being identified.

### **What will happen to the results of the research study?**

The results of the study will be reported in the lead researcher's doctoral thesis. The thesis is being written as part of training to become a clinical psychologist. Once it is completed a copy will be available from the University of Edinburgh Library.

The study will also be written up for submission to a journal where the findings may be published. People who take part in the study will not be identifiable in the thesis or in any published material.

Many thanks for taking the time to read this information sheet. If you have any further questions please do not hesitate to contact me via a member of your clinical team.

Claire Hamill  
Trainee Clinical Psychologist (Lead Researcher)  
Psychology Department  
The State Hospital

## **Appendix 10 - Participant Consent Form (State Hospital Version)**

Enclosure:

1. Participant Consent Form (State Hospital Version)



## **Appendix 11 - Recruitment Letter (Prison Service Version)**

Enclosure:

1. Letter sent to personal officers containing brief research protocol



Claire Hamill  
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## **Information for Personal Officers – Version 1 (SPS)**

### ***Research Project – “Attachment and Emotional Functioning in Violent Offenders: Is Attachment Pattern Related to Victim Choice?”***

Dear Personal Officer,

You are invited to assist in the recruitment of prisoner participants for the above research project. The aim of this letter is to provide you with some information about the study, and to outline what will be asked of personal officers who agree to help out.

#### **Background to the Project**

Claire Hamill (Trainee Clinical Psychologist) is currently working towards the attainment of a Doctorate in Clinical Psychology (D.Clin.Psychol.) in partnership with the University of Edinburgh and The State Hospital. As part of their training, D.Clin.Psychol. trainees are required to conduct a significant piece of independent research and submit this as a thesis. The above research project will therefore be submitted in part fulfilment of the principal investigator’s clinical doctorate, but will also be written up for publication and presented at relevant conferences, etc.

Ms Hamill has chosen to conduct a research study examining attachment style (i.e. how we function in relationships) and emotional functioning in violent offenders both within The State Hospital and the Scottish Prison Service. Previous studies have demonstrated that attachment style is linked to how we function emotionally, and there is a suggestion that both of these aspects may be related to, or predictive of, violent offending. This study will be the first to empirically examine this question, and to consider how mental health impacts on and interacts with these factors.

#### **Utility of the Research Findings**

The findings of this study should be of value to all organisations working with violent offenders. Examining whether attachment style and/or emotional functioning are related to violence and victim choice will provide information that will enhance and enrich violence risk assessments and offence formulations. This will in turn allow for the identification of additional risk management strategies and so potentially reduce the risk of further violent offending (e.g. via interventions to address any deficits in emotional functioning or to help offenders form more secure attachments). It is hoped that the results of the study will be of interest to and contribute to service provision both within the State Hospital, the Forensic Network, and further afield.

### **Who has reviewed the study?**

The study has been reviewed and accepted by the following:

- The University of Edinburgh's Clinical & Health Psychology Ethics Panel
- The State Hospital's Research Committee
- The Scottish Prison Service's Research Access & Ethics Committee
- The NHS National Research Ethics Service (NRES)

Full ethical approval was granted by NRES in July 2008 (REC ref: 08/H0903/49).

### **What will prisoners have to do?**

Those who consent to take part will be invited to attend a single session where they will be asked to complete a brief attachment questionnaire and two assessments of emotional functioning. This session will take place in a quiet room within the prison hall and should take no longer than 1 hour. If the prisoner finds it difficult to concentrate for an hour, or would prefer to be seen over a number of shorter sessions, this can also be arranged.

If the prisoner has any difficulties with reading or writing they can still take part as Ms Hamill will read the questions aloud to them if they choose, or assist with writing down responses. Prisoners can also be given extra time if required.

### **How can prison officers help?**

Ethics panels hold the view that staff working directly with prisoners should be involved in the identification and recruitment of research participants, and will not permit researchers to make the initial approach to participants.

Ms Hamill will therefore provide flyers that can be given out to prisoners, and would ask that personal officers assist in noting down which prisoners are interested. If they express a willingness to take part then Ms Hamill will arrange to meet with them and go through the information sheet and consent form to ensure an informed consent process. Prisoners will have the opportunity to discuss anything they are unclear about or any concerns they may have. It will be made clear to them that they are not under any obligation to participate, and that their decision to participate or not will have no influence on their parole, care, or life in prison in any way. They will also be reassured that the information collected will be treated as confidential. Participants will also be informed of their right to withdraw from the study at any time, and without giving reasons.

Personal officers who are not directly involved in the selection and recruitment process can assist by facilitating access to rooms, etc and having an awareness of the study in case any participants have questions that need to be directed back to the researcher.

### **What are the inclusion/exclusion criteria?**

#### ***Inclusion Criteria***

Individuals will be eligible for inclusion in the study if:

- They have perpetrated a serious act of violence towards another person (i.e. caused physical harm/injury), not necessarily resulting in conviction
- They are male and between the ages of 18 & 65
- (within the State Hospital) They are resident in any of the continuing care wards (with the exclusion of the Learning Disability ward) or rehabilitation wards within the hospital and have been deemed as having the capacity to give informed consent to participate in the study by their RMO.
- (within The State Hospital) They have a diagnosis of any major mental illness. The diagnosis should conform to an official nosological system such as DSM-IV (APA, 1994) or the International Classification of Diseases-10 (ICD-10; World Health Organisation

[WHO], 1992). For the purposes of this study, major mental illness is defined as a *primary* diagnosis of an Axis I disorder according to DSM-IV criteria, and within F-20 – F-48 according to ICD-10 criteria. Additional diagnoses will be recorded for the purposes of analysis, but these won't be taken into account when determining eligibility for inclusion (i.e. it is only the primary diagnosis that will be considered).

### ***Exclusion Criteria***

Individuals will be excluded from the study if:

- They have any history of sexual violence
- They suffer from an intellectual disability or have language difficulties that preclude assessment (e.g. non-English speakers).
- (within the State Hospital) They are resident within either the admissions or learning disability ward, or if they have been assessed as not having the capacity to give informed consent to participate in the study by their RMO.
- (within the State Hospital). They do not have a primary diagnosis of major mental illness as defined above.
- (within the Prison sample). They have a diagnosis of mental disorder. For the purposes of this study, mental disorder is defined as any mental illness (as defined above) or any personality disorder as defined within Axis II of DSM-IV or within F60 – F62.9 of ICD-10.

### **How many prisoners will be involved and when will data collection take place?**

In order to obtain statistical power for the planned analyses, the aim would be to recruit 64 participants from The State Hospital and 64 participants from the Prison Service if possible. Ms Hamill is aware that this will place significant demands on both services, and as such, will do whatever she can to help the SPS accommodate the project.

Ms Hamill intends to collect data on one day per week (Wednesday or Friday) over the next few months. She can be flexible as to when is most convenient to meet with participants and access rooms, etc.

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Thank you for taking the time to read this information. Please feel free to contact Ms Hamill with any questions or if you would like more information.

Claire Hamill  
Trainee Clinical Psychologist (Lead Researcher)  
Psychology Department  
The State Hospital

## **Appendix 12 – Participant Information Sheet (Prison Version)**

Enclosure:

1. Participant information sheet (Scottish Prison Service Version)



## **Participant Information Sheet – Version 1 – May 2008 (SPS)**

### **Attachment Style and Emotional Functioning in Offenders (REC Ref: 08/H0903/49)**

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Talk to others about the study if you wish.

Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

#### **What is the purpose of this study?**

The purpose of this study is to gain a better understanding of attachment style and emotional functioning in offenders. Attachment style develops as a result of our early relationship experiences, and shapes how we later behave in relationships with others as adults. It is thought that our attachment style is linked to how we function emotionally, for example, how good we are at recognising how another person might be feeling. This study will investigate how these things might be linked to offending. This should then give us a clearer understanding of some of the possible reasons behind offending behaviour, which should in turn help to prevent future offending.

#### **Why have I been chosen?**

This study is being carried out at both The State Hospital and within the Scottish Prison Service. Your personal officer has identified you as a potential participant.

#### **Do I have to take part?**

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and will be asked to sign a consent form.

If you decide to take part you are still free to withdraw at anytime and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect the standard of service you receive or any of your legal rights.

#### **What will happen to me if I take part?**

You will be invited to come along to a single session where you will be asked to complete a questionnaire and two assessments. This session will take place in a quiet room within the prison and should take no longer than 1 hour. If you find it difficult to concentrate for an hour, or would prefer to be seen for a number of shorter sessions this can also be arranged.

If you have any difficulties with reading or writing you can still take part as the person who comes to see you can read the questions aloud to you if you wish, or help you to write down your answers. You can also be given extra time if you need it.

The researcher will also gather some information about your offences and any history of mental health problems from your records. This information will be kept confidential at all times.

**What do I do once I've made my decision?**

If you are willing to take part, a suitable time to come and see you to complete the assessments will be arranged.

**Will my taking part in the study be kept confidential?**

All information that is collected about you during the course of the study will be kept strictly confidential. Any information about you will have your name removed so that you cannot be recognised from it.

Your personal officer will know that you are taking part in the study. If you disclose information during the interview that causes concern about your well-being, or the well-being of others, this information will be shared with your personal officer. When the study is written up to be submitted for publication, all names and identifiers will be removed so there is no possibility of you being identified.

**What will happen to the results of the research study?**

The results of the study will be reported in the lead researcher's doctoral thesis. The thesis is being written as part of training to become a clinical psychologist. Once it is completed a copy will be held in a university library.

The study will also be written up for submission to a journal where the findings may be published. People who take part in the study will not be identifiable in the thesis or in any published material.

Many thanks for taking the time to read this information sheet. If you have any further questions please do not hesitate to contact me via a member of staff.

Claire Hamill  
Trainee Clinical Psychologist (Lead Researcher)  
Psychology Department  
The State Hospital

## **Appendix 13 – Participant Consent Form (Prison Service Version)**

Enclosure:

1. Participant Consent Form (Scottish Prison Service Version)





Disagree Strongly

1

2

3

Neutral/mixed

4

5

Agree Strongly

6

7

		Response (Write Number)
15.	I feel comfortable sharing my private thoughts and feelings with the people that I'm close to	
16.	My desire to be very close sometimes scares people away	
17.	I try to avoid getting too close to others	
18.	I need a lot of reassurance that I am loved by the people that I'm close to	
19.	I find it relatively easy to get close to others	
20.	Sometimes I feel that I force others to show more feeling and more commitment	
21.	I find it difficult to allow myself to depend on others	
22.	I do not often worry about being abandoned	
23.	I prefer not to be too close to others	
24.	If I can't get others to show interest in me I get upset or angry	
25.	I tell the people that I'm close to just about everything	
26.	I find that others don't want to get as close to me as I'd like	
27.	I usually discuss my problems and concerns with others	
28.	When I'm not close to others I feel somewhat anxious and insecure	
29.	I feel comfortable depending on others	
30.	I get frustrated when others aren't around as much as I'd like	
31.	I don't mind asking others for comfort, advice or help	
32.	I get frustrated if others are not available when I need them	
33.	It helps to turn to the people that I'm close to in times of need	
34.	When others disapprove of me, I feel really bad about myself	
35.	I turn to others for many things, including comfort and reassurance	
36.	I resent it when the people that I'm close to spend time away from me	

## Appendix 15 – Theory of Mind Assessment

### Four first- and second-order false belief tasks (ToM)

(Mazza et al., 2001)

**Instructions:** Read each story aloud to the participant and then ask the two questions which follow the story. (N.B. TQ = ToM question and MQ = memory question). Repeat each story once only if the participant requests this.

**Scoring:** All answers should be scored 1 for a correct answer and 0 for an incorrect or incomplete answer. A correct ToM answer reflects the ability to appreciate a character's mental state and their false belief about the situation. A correct memory answer reflects recall of a target piece of information.

#### **The Sally and Anne story (Baron-Cohen et al., 1985) (first order)**

Sally places her ball in her basket and then she leaves the scene. Anne transfers the ball from the basket to a box.

*TQ:* When Sally comes back, where will she think her ball is?

*MQ:* Where did Anne put the ball?

#### **Cigarettes story (Happè, 1994) (first order)**

John leaves a packet with five cigarettes on the table and then goes away. In the meantime Janet comes in, takes one of John's cigarettes and goes out, without John knowing.

*TQ:* When John comes back for his cigarettes, how many does he think he has left?

*MQ:* How many cigarettes are really left in John's packet?

#### **The Ice-Cream Van story (Baron-Cohen, 1989) (second order)**

John and Mary are together in the park. Along comes the ice-cream man. John would like to buy an ice-cream but has no money with him. The ice-cream man tells him to go home and get his money. In the meantime he will be staying in the park. When John comes home to get the money, the ice-cream man moves to the church. Later John meets the ice-cream man in front of the church, but Mary does not know about that because she came back home before.

*TQ:* "Where does Mary think that John has gone to buy an ice-cream?"

*MQ:* "Does Mary know that the ice-cream man has talked to John?"

#### **B.4. Burglar story (Happè and Frith, 1994) (second order)**

A burglar has just robbed a bank and is running away from the police when he meets his brother. The burglar asks his brother not to let the police find him, then he runs away and hides in the church yard. The police have looked everywhere for the burglar except the church yard and the park. When they come across the burglar's brother they ask him if the burglar is in the church yard or in the park. They expect him to lie and so wherever he tells them they will go and look in the other place. But the Burglar's brother who is very clever and does want to save his brother knows that the police don't trust him.

*TQ:* "Where will the burglar's brother tell the police to look for the burglar. In the church yard or in the park?"

*MQ:* "Where is the burglar really hiding?"

## Appendix 16 – MSCEIT Sample Items

### Sample MSCEIT™ Items

The MSCEIT has eight sub-tests and 140 individual items. These examples are meant to illustrate the type of items that this ability test of emotional intelligence consists of.

#### Identifying Emotions

*Indicate how much of each emotion is expressed by this face (a picture would be shown):*

None 1 2 3 4 5 Very Much

- a) Happiness
- b) Anger
- c) Fear
- d) Excitement
- e) Surprise

#### Understanding Emotions

*Tom felt anxious, and became a bit stressed when he thought about all the work he needed to do. When his supervisor brought him an additional project, he felt \_\_\_\_\_. (Select the best choice.)*

- a) Overwhelmed
- b) Depressed
- c) Ashamed
- d) Self Conscious
- e) Jittery

#### Managing Emotions

*Debbie just came back from vacation. She was feeling peaceful and content. How well would each action preserve her mood?*

*Action 1: She started to make a list of things at home that she needed to do.*

Very Ineffective..1.....2.....3.....4.....5..Very Effective

*Action 2: She began thinking about where and when she would go on her next vacation.*

Very Ineffective..1.....2.....3.....4.....5..Very Effective

*Action 3: She decided it was best to ignore the feeling since it wouldn't last anyway.*

Very Ineffective..1.....2.....3.....4.....5..Very Effective