THE ROLE OF GENERALISED AND RELATIONSHIP-SPECIFIC ATTACHMENT IN ANGER AND AGGRESSION

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Aims: The aim of this research is to examine the relationship between generalised and relationship-specific attachment anxiety and avoidance and anger arousal, anger cognition and overt and covert aggression in males, females, and in young male violent offenders.
Methods: Five studies are presented. One hundred and nine males, 123 females, and twenty-nine violent male offenders participated in this research. Self-report questionnaires were used to assess attachment style, anger, and aggression. Data were analysed by using correlation, multiple regression, and quantitative case studies.
Results: The studies presented in this thesis are the first to explore attachment from a generalised paradigm in the context of anger and aggression and also in the context of anger mediation. Results indicate that generalised attachment anxiety is a significant correlate of anger and aggression in both male and female non-offenders. Results also indicate that generalised attachment anxiety is more related to anger and aggression in male and female non-offenders than generalised attachment avoidance. These findings also provide evidence for the role of anger as a mediator between generalised attachment anxiety and aggression in both male and female non-offenders. Results from the quantitative case studies show that non-offending males and females who self-reported high levels of aggression score moderately or highly in both relationship-specific attachment anxiety and/or avoidance. Results from the male violent offender sample indicate that generalised and relationship-specific attachment avoidance, particularly attachment avoidance to the parents, were the key correlates of anger and aggression rather than generalised and relationship-specific attachment anxiety.

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TABLE OF CONTENTS

APPENDICES D to G are available on the accompanying CD-ROM.

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

AGGRESSION AND VIOLENCE

The Problem of Aggression and Violence

Aggression and violence are perennial problems. Home Office (2008) statistics show that violent crime represents 21% of all crime (based on the British Crime Survey). According to police recorded crime, violence against the person accounts for 19% of all crime. There were over 10 million violent offences (including robbery) recorded in 2007.

As well as affecting the victim, violent crime has indirect and far–reaching effects, creating a fear of crime for friends, family, and the community in which the violence occurs. The above figures also do not take into account unreported offences and the cumulative effect of violent crime over the years. Indeed, violent crime places a heavy financial and social burden on the economy and public services (Dubourg, Hamed, & Thorns, 2005).

Aggression, which may or may not involve physical force (Siann, 1985), is another closely related public concern. A recent meeting at the Royal Society of Medicine highlighted the importance of focusing on how aggression in youth can lead to full-blown violence in adulthood. Dibb (2007) makes the point that researchers interested in reducing crime should be concerned about the public problem of aggression in children, and emphasises the importance of continued research into what aspects of socialisation are key in reducing the risk of children developing violent tendencies in adulthood. Dibb states that reducing aggression and violence must be in the public interest and therefore the potential causes of these tendencies or behaviours should be consistently and systematically investigated.

The Challenge of Defining Violence and Aggression

Both violence and aggression are difficult to define. Some researchers have described *violence* in terms of its causes and outcomes, some in terms of its nature, and others have looked at violence in terms of intent. Further obfuscation is caused by the capricious use of terminology: 'aggression', 'violence', and 'criminal violence'. These terms are very often used synonymously in the literature without an explicit clarification of their differences. Blackburn (1993) suggests that a single definition of violence is unattainable. He states that researchers from a variety of diverse backgrounds will inevitably look at different aspects of the construct. However, definitions and descriptions of the terms used in the context of a specific given situation are essential.

Siann (1985; see also Megargee, 1982) sought to clarify the differences in meaning between aggression, violence, and criminal violence. Siann (1985) attempts to allow for these disparities by considering a variety of views on definitions. She states:

> *Aggression* involves the intention to hurt or emerge superior to others, does not necessarily involve physical injury (violence) and may or may not be regarded as being underpinned by different kinds of motives…*Violence* involves the use of great physical force or intensity and, while it is often impelled by aggressive motivation, may occasionally be used by individuals engaged in a mutual violent interaction which is regarded by both parties as intrinsically rewarding. (Siann, p.12).

Both Megargee (1982) and Siann note that 'criminal violence' should be defined as behaviour that causes physical injury to another person that is forbidden in law.

Buss (1961) defined aggression as a "response that delivers noxious stimuli to another organism" (p.1). Although most researchers have defined aggression as something that involves the *intent* to injure (e.g. Bandura, 1973; Berkowitz, 1962; Bushman & Anderson, 2002; Dollard, Doob, Miller, Mowrer, & Sears, 1939), Buss (1961) proposed that aggression can involve accidental injury but actual intent to do harm is not a necessary component of aggression.

A recent example of how perspective and purpose affects definition is reflected in the description of violence by the World Health Organisation (Krug, Dalhberg, Mercy, Zwi, & Lozano, 2002). The WHO only defines intentional violence, but approaches it comprehensively:

> The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or a community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation (p. 5).

The WHO Types of Violence

The WHO presents three categories of violence. These are self-directed, interpersonal, and collective violence. Self-directed violence is described as suicidal behaviour, including actual and attempted suicide, and even suicidal thoughts. Self-directed violence also includes self-abuse and is not regarded as sexual in nature. Interpersonal violence is described as being directed towards the family, an intimate partner, or towards a member of the community such as a stranger or an acquaintance. Community violence involves violence in institutions, and "random acts of violence" against a non-relative (Krug et al., 2002, p.6). The WHO presents fourfold classification of the nature of violence that includes physical, sexual, psychological violence and also

deprivation or neglect. The organisation acknowledges that a violent act might encompass elements of all four types.

Home Office Definitions

Even defining one category of violence, violent crime, can be problematic. The definition of violent crime is more complicated than that definition of Megargee (1982) and Sian (1985) because criminal violence includes a wide range of offences and its definition is dependent upon the legal system of a given country. For example, the definition of violent crime in England and Wales, according to the Home Office, is nonspecific and highlights the versatility of the term. In its report, Crime in England and Wales 2004/2005, the Home Office has defined violent crime as "a very diverse crime grouping, with the most serious crime of murder at one end, pushing and shoving at the other, and a range of offences in between" (2005, p.72; see also Home Office, 2008 p.63-68).

In addition, the Home Office (2005) specifies three major categories of violent offence. These are 'violence against the person', 'sexual offences', and 'robbery'. Within these three categories, there are further specific offences. Violence against the person includes homicide (murder, manslaughter, and infanticide), conspiracy to murder, wounding (grievous bodily harm *with* intent), common assault, including an assault causing actual bodily harm (or grievous bodily harm *without* intent), harassment, and possession of a weapon. Sexual offences include rape, sexual assault, paedophilia, and exposure. It is acknowledged that not all sexual offences have a violent aspect: for example, bigamy. Robbery is regarded (in Home Office definitions) as violent crime because force or threat of force is involved (Home Office, 2005).

Other Types of Violence and Aggression

In addition to the types of violence specified by the WHO Krug et al. (2002) and the Home Office (2008) and as well as the definitions and descriptions already presented in this thesis of aggression (e.g. Bandura, 1973; Berkowitz, 1962; Anderson & Bushman, 2002; Dollard et al., 1939; Buss, 1961; Mergargee, 1982; Siann, 1985) there are two key types of aggression and violence that are frequently described in the literature: instrumental and affective (sometimes alternatively called hostile, angry, impulsive, or reactive). Instrumental violence and aggression are carried out to achieve a specific goal and are a means to an end of achieving this goal (e.g. money, restoration of justice). Affective violence and aggression, however, is impulsive and angry and it is motivated by the intention to hurt another person (see Baron & Richardson, 1994; Baumeister, 1997; Berkowitz, 1962; Geen & Donnerstein, 1998; Tedeschi & Felson, 1994; Zillmann, 1979). Bushman and Anderson (2001) have suggested that the distinction between hostile and instrumental aggression is not appropriate for two reasons. First, the distinction does not consider acts with multiple motives; second, the distinction is "confounded with the automatic-controlled information processing dichotomy" (Bushman & Anderson, p. 275). Bushman and Anderson constructed their own model of aggression that integrates previously published theories and descriptions of aggression, called the general aggression model (GAM, see below).

Theories of Aggression and Violence

A huge amount of research exists on violence and aggression. There are psychodynamic explanations of violence and aggression (Fonagy, 2003; Freud, 1932/1963; Fromm, 1977); theories that integrate the psychodynamic tradition and early behaviourist principles of aggression (Berkowitz, 1993; Dollard et al., 1939); a social and social learning theory of aggression (Bandura, 1973; Toch, 1979); an ethological

theory (Lorenz, 1966); biological (e.g. Moyer, 1968), a neurological theory of aggression and violence (Mednick, Pollock, Volavka, & Gabrielli, 1982; Merikangas, 1981), and cognitive theories of aggression and violence (Beck, 1999, 2000; Novaco, 1994). There is also a substantial literature that offers longitudinal research on antisocial behaviour and violence (Farrington, 1991, 2000, 2001; Loeber, Farrington, & Waschbusch, 1998; Moffitt, 1993; Moffitt, Caspi, Rutter, & Silva, 2001; Murray, Irving, Farrington, Colman, & Bloxsom, 2008a; 2008b, under review) and theoretical overviews on violence and its applied psychology that include explanations of violence as influenced by mental disorder (Blackburn, 1993; Blumenthal & Lavender, 2000; Davey, Day, & Howells, 2005; Farrington, Hollin, & McMurran, 2001; Gilligan, 2000; Hollin, 1989; Howells & Hollin, 1989; Megargee, 1982; Monahan & Steadman, 1994; Monahan et al., 2001; Siann, 1985; Wolfgang & Wiener, 1982; Zillmann, 1979, 1983).

Violence and aggression have also been explained using an adult attachment paradigm (Bowlby, 1944, 1973, 1980, 1982/1969), most frequently in the context of sexual violence (Baker & Beech, 2004; Burk & Burkhart, 2003; Levinson & Fonagy, 2004; Lyn & Burton, 2004; Marsa et al., 2004; Ross & Pfäfflin, 2004; Smallbone & Dadds, 1998; Ward, Hudson, & Marshall, 1996), and non-sexual non-intimate interpersonal violence (Arrigo & Griffin, 2004; Baker & Beech; Myers, Gooch, & Meloy, 2005; Timmerman & Emmelkamp, 2005). In addition, a substantial body of research identifies insecure attachment as a key dynamic in physical intimate partner violence (Babcock, Jacobson, Gottman, & Yerington, 2000; Bartholomew & Allison, 2006; Douglas & Dutton, 2001; Dutton, 2002; Dutton, Saunders, Starzomski, & Bartholomew, 1994; Dutton, van Ginkel, & Landolt, 1996; Gormley, 2005; Henderson, Bartholomew, Trinke, & Kwong, 2005; Holtzworth-Munroe, Rehman, & Herron, 2001; Holtzworth-Munroe, Stuart, & Hutchinson, 1997; Kesner, Julian, & McKenry, 1997;

Lafontaine & Lussier, 2005; Mahalik, Aldarondo, Gilbert-Gokhale, & Shore, 2005; Mauricio & Gormley, 2001; McClellan & Killeen, 2000). Research has also focused on attachment and youth violence from a developmental perspective (Butler, Fearon, Atkinson, & Parker, 2007; Fonagy, 2003; 2004a; 2004b; 2004c; Hill-Smith, Hugo, Hughes, Fonagy, & Hartman, 2002; Pedersen, 2004; Twemlow, 2003; Wampler & Downs, 2009). In the field of adult attachment, the focus is often on how attachment insecurity in adulthood can underpin sexual offending (e.g. Baker & Beech), and physical intimate partner violence (e.g. Babcock et al.). The relationship between insecure adult attachment and other forms of violence like non-sexual violence and violent offending directed at strangers or acquaintances has been generally less thoroughly explored. Research that examined adult or juvenile attachment and (either entirely or partly) non-sexual violence or delinquency include research by Butler et al., (2007), Levinson and Fonagy (2004), Ross and Pfäfflin (2004), Van IJzendoorn et al, (1997), and Wampler and Downs (2009). These studies are discussed in more detail in Chapter Ten.

Explaining Aggression – The General Aggression Model

A recent integrative model of aggression has been provided by Anderson and Bushman (2002). They presented a General Aggression Model (GAM) which took into account all of the previous key theories of aggression and assimilated them into one core framework. The GAM encompasses the definitions provided above by Anderson and Bushman. The GAM developed from principles taken from the cognitive neoassociation theory of aggression (Berkowitz, 1989; 1990a; 1990b; 1993), social learning theory (Bandura, 1983), script (or schema) theory (Huesmann, 1998), excitation transfer theory (Zillman, 1983), and social interaction theory (Tedeschi & Felson, 1994). The GAM is shown in Figure 1 and is conceptualised as a set of inputs,

routes, and outcomes. The GAM can also be applied as a theory of violence. This is because, according to Anderson and Bushman, the main difference between aggression and violence is a matter of degree: violence leads to extreme harm as an outcome, while aggression leads to less extreme harm as an outcome.

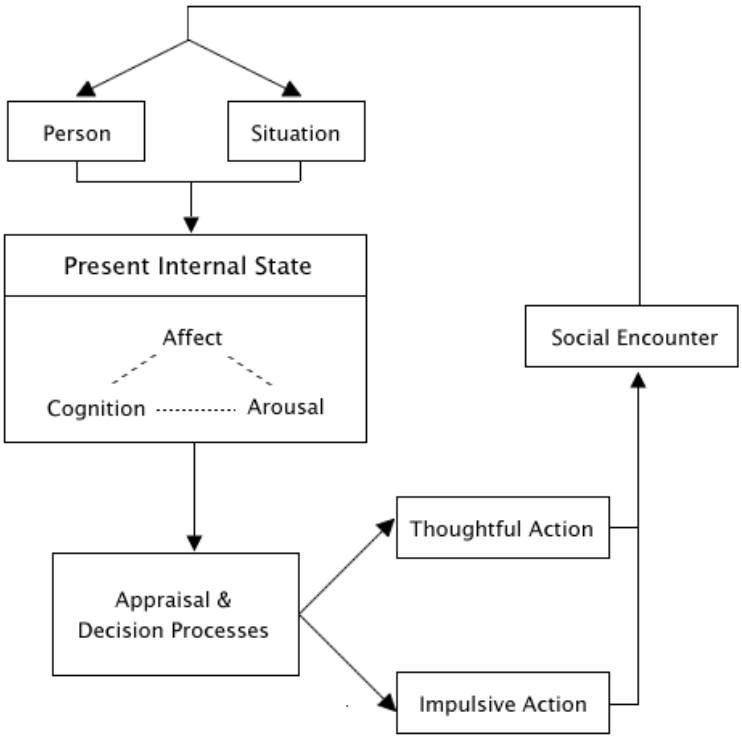

Figure 1. General Aggression Model (Anderson & Bushman, 2002, p.34).

The GAM considers as central what Anderson and Bushman (2002) call, "a person in the situation, called an episode" (Anderson & Bushman, p.34). Anderson and Bushman propose that a person in a specific situation experiences specific triggers, actual or perceived, which lead to the interaction of affective, cognitive, and physiological responses. These responses guide an appraisal of the situation and lead to decisions that are described as either thoughtful actions or impulsive actions (Anderson

& Bushman). Actions lead to a social encounter with another person and this experience feeds back into another social episode that has cognitive, physiological, and affective responses. Therefore, person and situation factors interact, leading to affective states and behavioural responses.

Person factors include personality traits, gender, beliefs, attitudes, values, and long-term goals (Anderson & Bushman, 2002). Person factors could also include an individual's attachment style and how a relationship is perceived by that individual. Scripts, or schemas, are also person factors and contain information relating to all the other person factors. Schemas are internal mental representations of generalised knowledge structures developed by the build-up of thought-based (cognitive) neural networks (Robins & Novaco, 1997). These mental representations enable fast and efficient responses to stimuli and contain procedural rules (in memory) that automatically manage person-centred interactions and situations.

Situational factors include aggressive cues, provocation, frustration, pain and discomfort, drugs, and incentives (those that are most relevant to instrumental aggression). Both situational and person factors interrelate and influence aggression via the interaction of affect, cognition, and arousal. Their combined influence leads to the outcome of appraisal and decision-making.

Anderson and Bushman (2002) propose what factors influence cognition, affect, and arousal. They state that hostile thoughts, hostile attribution biases (Crick & Dodge, 1994), and schemas can increase the risk of aggression. They cite mood and emotion and expressive motor responses as influential in a person's affective state when an individual is appraising a potentially aggressive situation. For example, pain has been found to increase anger affect (Lindsay & Anderson, 2000), and anger is often related to aggression or violence (Novaco, 1994), while heat (Bushman, Wang, &

Anderson, 2005), uncontrollable noise (Geen & McCown, 1984), and overcrowding (Lawrence & Andrews, 2004) can also trigger aggression.

Anderson and Bushman (2002) state that arousal from "irrelevant sources (e.g. exercise)" (p.39) can lead to aggression. Neural excitation transfer (cognitive arousal remaining from a different event) may occur because arousal has been cognitively mislabelled or appraised to be anger involving provocation (Zillman, 1983).

According to Anderson and Bushman (2002) arousal, affect, and cognition, all influenced by situational and personal variables, may work together to lead to an aggressive or non-aggressive behavioural outcome. Such outcomes can be derived from immediate appraisal, where internal factors may lead to impulsive actions, or from a more controlled re-appraisal, which can lead to thoughtful rather than impulsive responses. Aggression occurs when affect, cognition, and arousal, in relationship with personality and situational factors, lead to the perception that aggression is warranted. This perceptual process can occur impulsively (and therefore with lack of conscious thought between thought and action) or non-impulsively (where conscious thought is involved).

The arousal, cognition, and behavioural triad in the GAM is similar in structure to other cognitive behavioural models, notably Novaco's three-component model of anger (Novaco, 1994) and Mikulincer and Shaver's (2003) cognitive behavioural model of the adult attachment system. These latter two models will be discussed in Chapters Two and Three.

Definitions of Aggression and Violence

A large amount of literature will be cited in this thesis that may define and describe aggression and violence differently. This thesis predominantly takes on the definition of aggression and violence as cited by Anderson and Bushman (2002)

because it is considered to be the most recent integrative and modern framework of aggression. Therefore, whenever aggression or violence is discussed in the context of this doctoral research, the definitions and descriptions which follow apply.

Aggression

> Human aggression is any behaviour directed toward another individual that is carried out with the proximate (immediate) intent to cause harm. In addition, the perpetrator must believe that the behaviour will harm the target, and that the target is motivated to avoid the behaviour. Accidental harm is not aggressive because it is not intended (Anderson & Bushman, 2002, p.28-29).

In addition, the definition of aggression in this thesis includes hostile aggression, which is a resentful and suspicious behaviour towards others (Buss & Warren, 2000). Therefore, in the context of the above description, aggression is considered in this thesis to have both overt (physical and verbal) and covert (indirect and hostile) characteristics. Hostile and indirect aggression are both included in the definition of aggression because they appear in the Buss and Warren (2000) conceptualisation of aggression and because they can be used as a measure of covert aggression.

Violence

According to Anderson and Bushman (2002), "Violence is aggression that has extreme harm as its goal (e.g. death). All violence is aggression, but many instances of aggression are not violent" (p.29). Anderson and Bushman give the example of pushing a child off a bicycle. They consider this act to be aggressive but not violent. An

example of violence according to this definition would be to attack someone causing actual or grievous bodily harm or death.

In general, it is recognised that not all violence is illegal. However, in the context of this thesis, violence is seen to be criminal violence, which is an illegal interpersonal behaviour that involves physical harm. Therefore, criminal violence is an actual act that has been performed against another person with or without intent. Self-harm or psychological harm is not considered in this thesis which only indicates physical violence directed at another person (which may or may not include psychological harm as part of the associated effects).

In terms of this thesis, aggression is a self-reported act of physical, verbal, hostile, and indirect aggressive intent as assessed by a questionnaire, while violence is an illegal act causing physical harm to another individual that has led to a conviction. This illegal act of criminal violence has been both self-reported and confirmed by youth offending service data records.

CHAPTER TWO

ANGER

The following chapter provides an overview of anger. Anger will be defined and described, a brief summary of different perspectives on anger will be presented, and Novaco's anger theory and model will be reviewed with a focus on the importance of anger as a functional emotion. Finally, examples of research examining the consequences of dysfunctional anger will be discussed.

While anger does not always result in aggression and violence, it has often been shown to be a major contributor (Berkowitz, 1986; Blackburn, 1993; Craig, 1982; Lafontaine & Lussier, 2005; Levey & Howells, 1990; Megargee, 1966, 1973; Monahan & Steadman, 1994; Monahan et al., 2001; Novaco, 1994; Novaco & Taylor, 2004; Zamble & Quinsey, 1997). Recognition of the importance of anger in aggression and violence is seen in the anger management and treatment programmes that have been set up in prisons. This recognition is also reflected in the continued efforts of researchers to elicit further insights into how anger contributes to aggression and violence and to investigate how a theoretical understanding of the relationship between this emotion and these behaviours may have clinical application. This persistent search for explanations and solutions is easily justified: anger-fuelled aggressive and violent behaviour has far-reaching negative effects on individuals and society. Moreover, as such behaviours can lead to detention in custody, anger control is a daily concern for staff in prisons and psychiatric hospitals who have responsibility for rehabilitation and may be at risk of an 'angry attack' (Rice, Harris, Quinsey, & Cyr, 1990; Toch, 1989).

Defining and Describing Anger

Defining anger is difficult because of overlapping definitions of the emotion of anger and of the behaviour of aggression. Bandura (1973), Dollard et al. (1939), Freud (1961), and Lorenz (1966) all failed to differentiate anger and aggression. Early definitions of anger tended to focus on biological aspects and did not highlight other aspects of anger like cognition.

More recent definitions of anger highlighted the phenomenological and multidimensional aspects of the emotion. DiGiuseppe, Eckhardt, Tafrate, and Robin (1994) defined anger from a phenomenological perspective and stated that anger was an, "internal, mental, subjective feeling-state with associated cognitions and physiological arousal patterns" (p.19). More recently, DiGuiseppe and Tafrate (2007) have maintained that anger is an emotion while aggression is a behaviour.

A multidimensional definition of anger was provided by Kassinove and Sukhodolsky (1995), who saw anger as comprising not only physiological and cognitive, but also behavioural aspects. Kassinove and Sukhodolsky described behavioural aspects of anger as facial expressions or verbal or behavioural responses to anger. An example of a verbal expression of anger could be stating "I am angry" and a behavioural response to anger could be slamming a book on a desk. DiGiuseppe and Tafrate (2007) expanded upon the previous definitions providing a useful and integrated definition of anger:

> Anger is a subjectively experienced emotional state with high sympathetic autonomic arousal. It is initially elicited by a perception of a threat (to one's physical well-being, property, present or future resources, self-image, social status or projected image to one's group, maintenance of social rules that regulate daily life or comfort), although it may persist

> even after the threat has passed. Anger is associated with attributional, informational, and evaluative cognitions that emphasize the misdeeds of others and motivate a response of antagonism to thwart, drive off, retaliate against, or attack the source of the perceived threat. Anger is communicated through facial or postural gestures or vocal inflections, aversive verbalizations, and aggressive behaviour. One's choice of strategies to communicate anger varies with social roles, learning history, and environmental contingencies (p.21).

Novaco's (1994) theory of anger is another multidimensional approach to understanding this emotion. He defines anger as an emotion that is "subjectively experienced as an arousal state of antagonism toward someone or something perceived to be a source of an aversive event" (p.330). Exclusively amongst modern anger researchers, Novaco follows Darwin (1872/1998) in assessing that anger is adaptive and complex and can have both positive and negative effects on an individual or on others. Novaco's widely used theory of anger is important in applied psychology because the emphasis is on inter-related aspects of arousal and cognition that can have functional or dysfunctional outcomes on thoughts or behaviour (Novaco, 1994).

To Novaco (1994), anger becomes dysfunctional when anger experience and anger expression have a predominantly negative effect upon the individual experiencing the anger (such as having a heart attack or experiencing depression) or upon other individuals (such as being the victim of an 'angry' violent act). It is apparent that a focus on anger functionality is important in order to develop anger modification techniques for individuals who have negative anger experiences.

Different Approaches to Anger

Historically, anger has been viewed from many different perspectives. Darwin was the first to posit the idea of anger's evolutionary importance and to emphasise its adaptive value in overcoming problems (Darwin, 1872/1998). Emotion researchers often view anger as a basic, fundamental emotion like fear or anxiety (Ekman, 1992; Izard, 1977; Plutchik, 1980). Conversely, some psychologists have characteristically seen anger as a negative emotion that is secondary to depression rather than an independent emotion, a perception that has hindered research and the treatment of dysfunctional anger (see DiGiuseppe & Tafrate, 2007).

Some research focuses on anger as a hardwired emotion highlighting its biological 'flight or fight' function (Gray, 1982; Izard, 1977), while other perspectives emphasise its communicative value (Ekman, 2003). Neuropsychologists have observed the emergence of anger in patients with neurological damage, perhaps indicating a biological substrate (Wright, Martis, Shin, Fischer, & Rauch, 2002). Psychobiologists have documented anger in non-human primates (Goodall, 1995) and in other mammals such as elephants (Bradshaw, Schore, Brown, Poole, & Moss, 2005).

Rather than simply looking at anger as a specific concept in itself, researchers such as Bandura (1973), Dollard et al. (1939), Freud (1961), and Lorenz (1966) focused instead on 'arousal, 'instigation', and 'impulses'. Berkowitz discussed 'aggression' in his reformulation of the frustration-aggression hypothesis (Berkowitz, 1962; 1989), but focused on 'anger' in his studies of hostility catharsis (Berkowitz, 1970) and in his cognitive-neoassociationistic account of the formation and regulation of anger and aggression (e.g. Berkowitz, 1990a; 1990b). Berkowitz saw 'negative affect' as the key precursor of anger and fear but he did not focus on cognitive mediation as understood by present anger research (see Novaco, 1994).

Anger has also been investigated in the area of child development. Emotion regulation studies focusing on anger have looked at the socialisation process of anger control (Eisenberg & Fabes, 1992; Lemerise & Dodge, 1993, 2000). Further research has focused on the psychodynamic theories of anger regulation, childhood attachment to the caregiver, and the combined effect of these factors on an outcome of violence in children (Denham, Blair, Schmidt, & DeMulder, 2002).

From a sociocultural perspective, Averill's (1982) treatise on anger is significant. He views anger as a socially constructed phenomenon and described emotions as conflictive, impulsive, and transcendental. He states that humans have a biological pre-disposition to create and follow rules and he sees anger as the result of frustration when rules are violated. Although Averill identifies a biological root for anger, his views are firmly focused on explaining it as a conflictive and socially-derived phenomenon. However, as his accounts concentrate solely on the functional (adaptive and healthy) nature of anger, they do not add an understanding of the effects of anger dysfunction (anger that is maladaptive and unhealthy), or comment on how to manage problematic anger.

Megargee (1966, 1973) provides a personality approach to anger in the context of violence. He classifies personality types into either over-controlled or under-controlled, seeing both types as leading to violent behaviour through different routes. Over-controlled describes a personality characterised by the excessive control of aggressive impulses and a suppression of 'acting-out' frustrations. Megargee considered this personality type the most likely to lead to extreme violence such as murder and grievous bodily harm. In an over-controlled scenario, suppressed frustrations culminate until they pass regulatory control and inhibition, at which point a relatively small contextual provocation initiates an intensely violent act. In contrast,

Megargee considered an under-controlled personality to be typical of an 'aggressive personality' style with a low frustration threshold. This over-control/under-control distinction has been elaborated by Blackburn (1971, 1986), who describes two types of over-controlled personalities, both of whom use non-aggressive and avoidant ways of coping with hostile situations. The first type is characterised by a denial of hostile tendencies. Individuals of this type describe themselves as sociable, conforming, and not anxious. The second type displays social avoidance and poor self-esteem. Individuals of this type are viewed to have social skills deficits and to experience intense (high) anger. Blackburn (1993) suggested the difficulties presented by the first group related to 'cognitive avoidance' and denial, while the second type presented difficulties with the expression of anger.

Another perspective on personality and anger has been taken by Spielberger (1988). Spielberger's theory of anger focuses on how an individual can experience state anger or trait anger. Additionally, Spielberger recognised two ways of expressing anger: anger-in and anger-out. *State anger* is anger that occurs as a transient response to a current situation. *Trait anger*, however, is anger that is experienced as a stable aspect of an individual's personality. Spielberger defines anger-in as anger suppression, while anger-out is defined as anger that results in behavioural expressions of anger. Anger control occurs when an individual experiences anger but is careful in how she or he expresses it.

Anger plays an important role in attachment theory. Bowlby (1973, 1980, 1982/1969) highlights the functional nature of anger as an emotion serving to strengthen attachment bonds between the child and caregiver. Bowlby (1973) states that if anger becomes *dysfunctional* (where anger is weakening, not strengthening the relationship) it has a damaging effect on this emotional bond. According to Bowlby, dysfunctional

anger occurs when an infant is threatened with the actual or perceived loss of the attachment figure (usually the mother). This threatening scenario leads to the excessive use of protest behaviour and feelings of despair: if the loss is repeated too much, anger becomes excessive, mismanaged, and its excessive presence can lead to a variety of psychopathologies that can extend across the life-span (Bowlby, 1988). Concerned primarily with infant behaviour, Bowlby did not specifically examine the negative effects of anger in adulthood; however, he did suggest that adult anger should have similar functions to infant anger in attachment relationships (Bowlby). More recent research has specifically examined the link between anger and attachment in adulthood and has supported Bowlby's suggestions (Mikulincer, 1998).

Social cognition and psychodynamic adult attachment researchers began to show interest in the relationship between anger and attachment from the mid 1980s. While psychodynamic researchers explored attachment, anger, and violence, frequently in the context of borderline personality disorder (American Psychological Association, 2000), the social cognition researchers looked at anger and its effects in the context of intimate partner violence or sometimes in the context of attachment styles and anger experience (Lafontaine & Lussier, 2005; Mikulincer, 1998; Mikulincer & Shaver, 2005). Some researchers also observed the mediating role of anger in the relationship between attachment and aggression or violence and observed that anger has a mediating role in romantic relationships (Lafontaine & Lussier).

Anger and other Emotions

DiGiuseppe and Tafrate (2007) state that many definitions of anger do not apply exclusively to this emotion but can refer to other emotions as well. Based on a review of 12 publications, DiGiuseppe and Tafrate provided a detailed list of 19 ways in

which anger may differ from other emotions, like fear and sadness. These 19 statements are reproduced in Table 1 and they clarify definitions of anger in significant detail.

Table 1.

How Anger Differs from Other Emotions (List and Cited Authors all as Cited in DiGiuseppe and Tafrate, 2007, pp. 51-52.)

19 Descriptions of Anger	
Anger is a relatively frequent emotion	Scherer and Wallbott (1994)
Anger is a negative or unpleasant emotion	MacKinnon and Keating (1989)
Anger is as intense as fear but less intense than sadness	Scherer and Wallbott
Anger lasts longer than most other affective states	Scherer and Wallbott
Anger includes high sympathetic arousal. Though not as high as fear, it is higher than most emotions	Scherer and Wallbott Sinha, Lovallo and Parsons, 1992
Anger includes lower parasympathetic arousal than all other emotions	Scherer and Wallbott
Anger is experienced as "hot"	Scherer and Wallbott
There may be a wide variety of behaviors to express anger, and it is associated with a greater variability of behavioral expression than other emotions	Deffenbacher, 1997; Deffenbacher, Oetting, Lynch, and Morris, 1986

Table 1 (continued).

19 Descriptions of Anger	
It leads to verbal expression more than any other emotion except joy	Scherer and Wallbott
Anger elicits the strongest paralinguistic changes in one's voice of any emotion	Scherer and Wallbott
People feel little desire to change or control their experience of anger. The only emotion that people are less likely to want to change is joy.	Scherer and Wallbott
Anger produces a strong tendency to approach rather than to avoid the eliciting stimuli, surpassed in the approach tendency only by joy.	Scherer and Wallbott
Anger includes an experience of greater power or potency than either the eliciting threat or the object of the anger	MacKinnon and Keating, 1989
People perceive anger as negatively affecting their interpersonal relationships more than any other emotion	Scherer and Wallbott

Table 1 (continued).

19 Descriptions of Anger	
One's anger can be displaced and targeted at persons other than the anger-provoking person	DiGiuseppe and Tafrate, 2007
Anger often includes one or all of the following:	
Thoughts concerning perceived threats to high, unstable, self-esteem	Baumeister, Smart, and Boden, 1996
The perception of an injustice or grievance against oneself	Tedeschi and Nesler, 1993
The perception of another's blameworthiness	Close and Ortony, 1991; Clore, Ortonly, Dienes, and Frjida, 1993
The desire to harm the transgressor	Rubin, 1986; Tedeschi and Nesler, 1993

This extensive list of descriptions of how anger differs from other emotions highlights the difficulty of making a universally applicable and acceptable definition of anger (as with aggression and violence). DiGuiseppe and Tafrate (2007) note that socio-cultural differences would also modify descriptions of anger and would influence how different cultural and social groups perceive the emotion.

Novaco's Theory of Anger

Anger has been addressed most pertinently within the field of applied psychology by Novaco (1975; 1994) whose theory of anger shows a variety of

influences, most notably from cognitive psychology. Similarly to the General Aggression Model (Anderson & Bushman, 2002), Novaco's theory echoes Zillmann's cognitive excitation transfer hypothesis that residual cognitive arousal (the excitation of nodes in a neural network) from one cue will add to the successive physiological arousal from other subsequent cues, intensifying the overall affective response (Zillmann, 1971, 1979, 1983; Zillmann & Bryant, 1974). There is also some conceptual overlap between Novaco's theory and Schachter and Singer's (1969) cognition-arousal theory of emotion.

Novaco's theory also exhibits close conceptual similarities with social information processing models of social interaction, particularly in its cognitive appraisal aspect (Lazarus, 1966). In general terms, social information processing models are schematic representations of the cognitive processing that takes place to evaluate, store, and retrieve information perceived by the individual from social interactions (Crick & Dodge, 1994, 1996; Huesmann, 1988). Cognitive appraisal is a process by which the individual evaluates a 'self-environment' relationship. Cognitive appraisals can be either primary or secondary (Lazarus, 1991). Primary appraisal is a process by which an individual evaluates a situation in order to decide how relevant it is to their personal circumstances and needs. Secondary appraisal consists of a personal evaluation of possible coping strategies in response to the primary appraisal of the situation. Coping strategies can either be emotion-focused, where feelings are personally acknowledged, expressed outwardly, and emotional support is sought from others, or problem-focused, when practical support is sought from others. These secondary appraisals also involve an evaluation of who is to blame for the situation and an evaluation of what might be expected to occur in the future in response to the individual's reaction to such circumstances (see Lazarus; Smith & Lazarus, 1993).

Other key cognitive-behavioural researchers in the field have focused less on the physiological arousal or behavioural manifestations of anger (and how they interact with thoughts), and more on the specificity of information processing as pivotal to the control, experience, and display of anger (Beck 1999; Crick & Dodge, 1994, 1996; Huessmann, 1988). Nevertheless, it is Novaco's theory (Novaco 1975, 1994) that currently commands the applied academic literature and has had arguably the most influence on anger management and treatment programmes.

Novaco (1994) emphasises automatised cognitive mediation as the central precursor to anger. Automatised cognitive mediation refers to the mediating effects of schematic thought processing between brain activity and behaviour (e.g. an aggressive or violent act).

Novaco (1994) explains that an individual becomes angry when an environmental trigger leads to both physiological and cognitive arousal. Physiological arousal and cognitive arousal interact, leading to a subjective emotional experience of anger that, in turn, leads to a behavioural expression of anger. How the behaviour is expressed depends on factors such as individual differences in the perception of a provocation, and individual differences in subsequent cognitive processing and methods of coping with a perceived provocation. Figure 2 represents Novaco's model schematically, showing the environmental, physiological, cognitive, affective, and behavioural components of anger, and the interactions between them.

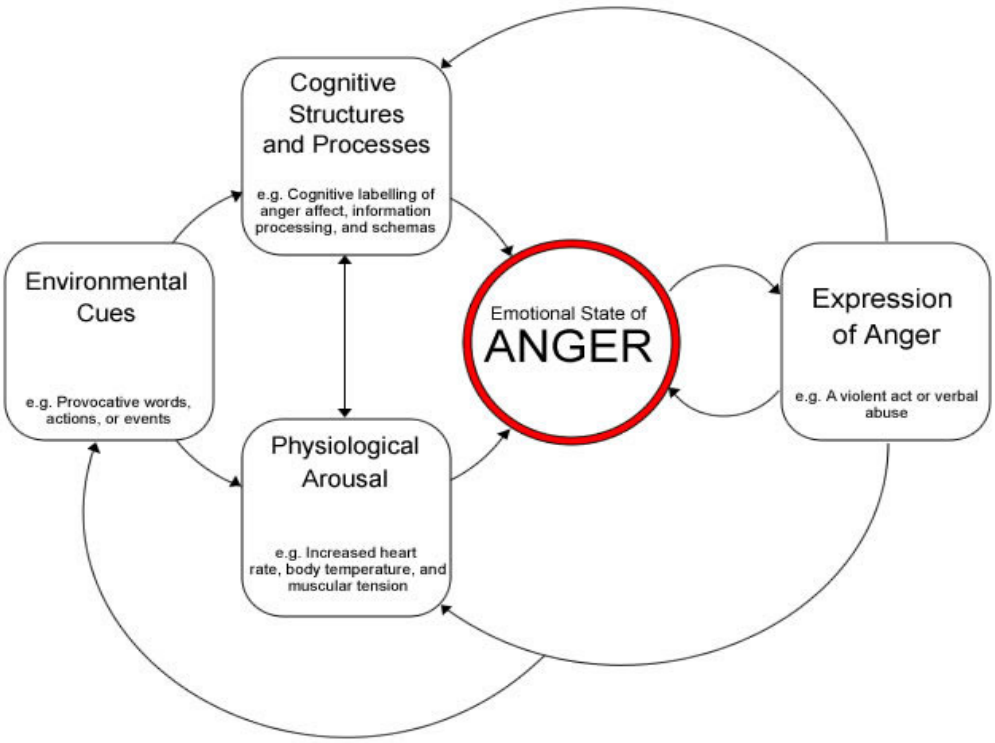

Figure 2. Novaco's Theory of Anger (after Novaco, 1994, as adapted by Hollin & Bloxsom, 2007).

As Figure 2 shows, Novaco's model comprises three key components that arise from a provocative event: arousal, cognition, and behaviour. Physiological arousal associated with anger is manifested in increased cardiovascular activity, increased body temperature, and muscular tension; cognitive arousal transpires by *schematic processing* (Novaco & Welsh, 1989) that occurs by means of neural networking effects (Zillmann & Bryant, 1974), and by the *cognitive labelling* of anger. *Cognitive labelling* of anger is the result of a subjective appraisal process that semantically associates the word 'anger' (or a semantically related word like 'irritation', 'annoyance', or 'rage') with the concurrently felt emotion.

Evidence for Anger and Physiological Arousal

If anger is adaptive and protective, it follows that an individual will be physiologically aroused, to varying degrees, by a threat to their physical and emotional safety (e.g. Bowlby 1982/1969; Novaco, 1994). The existence of a physiological component to anger is supported by studies that have found that anger can lead to tension in skeletal musculature and can increase blood pressure, leading to hypertension (Ketterer, 1996; Kubzansky, Cole, Kawachi, Vokonas, & Sparrow, 2006; Kubzansky & Kawachi, 2000).

Evidence for Anger and Cognitive Arousal

The emphasis on information processing makes Novaco's contribution to the concept of anger distinctive. This information processing approach is based on the fundamental assumption that past experience influences present appraisal. These past experiences are internally represented by anger schemas that increase the speed and efficiency in processing information (see Nisbett & Ross, 1980). What has provocation value, and what regulates arousal and behaviour, depends on how a threat is subjectively appraised by the individual and on what is considered to be evolutionarily necessary for physical and emotional safety. Subjective appraisal (see Lazarus, 1966) is affected by schemas that influence judgement, minimise the initial impact of contextual factors, and intensify the initial (and sustained) impact of individual expectations and beliefs.

Novaco (1994) describes anger schemas as those that predispose an individual to activate selectively a subjective perception of 'anger' and to express it in line with these schemas. Selective attention - key in the individual's subjective appraisal of a provocation - functions to retain awareness of certain factors over others, depending on what is perceived to be best for survival and adaptation to circumstances. Therefore,

the predominant use of anger schemas in the face of provocation partly explains how and why individuals may express their anger in the form of interpersonal violence. Importantly, however, it has been noted by Robins and Novaco (1999) that anger interacts with other social information processing systems and should be appreciated in this multi-system context. For example, other systems, like those which process an individual's attachment vis a vis themselves and significant others, is one other system that may affect the way in which anger is processed cognitively (Mikulincer & Shaver, 2003).

Cognitive Errors and Anger Dysfunction

A problem with the time-efficient automaticity of schemas is that this automaticity makes them susceptible to processing biases, and these biases can subsequently lead to an increase in anger experience (Dodge & Newman, 1981). So while schemas are very useful as shortcuts to efficient processing, objective judgement may be bypassed through their use. Objective judgement may be especially biased when a heightened physiological state of anger is experienced. Heightened anger affect may therefore increase the likelihood of anger being expressed as an aggressive or violent act.

Novaco and Welsh (1989) identified five types of information processing biases that they believe are characteristic of individuals who experience dysfunctional anger. Two of these biases relate to the way in which information is encoded and are named *attentional cueing* and *perceptual matching*. *Attentional cueing* describes a preoccupation with, and extended rumination about, a provoking cue. Novaco explains that preoccupation and rumination are factors that generate sustained feelings of provocation after the event or interaction has occurred. This continued irritation is likely to retain anger arousal (Novaco, 1986). Personality factors (like neuroticism),

basic human needs (like the need for emotional attachments), and emotions linked to these needs (like anxiety or fear), determine the extent of rumination because they influence the degree to which a provoking event receives selective attention over other variables. Therefore, individual differences in attending to a provocation influence the degree to which prolonged anger arousal is experienced. Importantly, interactions between anger and non-anger schemas in associative neural networks are likely to have either an additive (excitatory) or inhibitory effect on such anger experience and its subsequent expression. Indeed, Robins and Novaco (1999) note that anger schemas will interact with other cognitive systems, especially with those that are involved in emotional regulation. One other relevant cognitive system that may interact with anger schemas is that which regulates attachment processes (see Chapter 3).

Perceptual matching is the automatic mapping of personal feelings and expectations of a previous provoking experience onto current situations that may or may not warrant an angry response. Therefore, perceptual mapping means that the more an individual has been exposed to situations that involve anger, the more easily aroused they will become in response to a perceived provocation. For example, violent offenders who have been exposed to violence are more likely to be able to recall a 'violence schema' (Shelley & Toch, 1968). Novaco and Welsh (1989) explain that perceptual mapping occurs through the build-up of associative networks and schemas, allowing faster retrieval in response to related cues. Again, inter-relationships between other cognitive systems that involve interactions with other people are likely to have an effect on anger experience.

Other cognitive biases may encourage a negative use of anger. These include *fundamental attribution errors, false consensus,* and *anchoring effects*. A *fundamental attribution error* refers to the tendency for individuals to blame a situation (or problem)

on another individual's personality, but to judge their own behaviour according to non-personal circumstances. This error can lead to anger through misunderstanding and anger can escalate if there is a clear conflict of opinion between the people involved. Attribution error as a factor in dysfunctional anger and aggression has been well documented (Allred, 2000; Dyck & Rule, 1978; Zillmann, 1979).

A *false consensus* occurs when individuals assume that everyone else holds the same opinions as they do. This assumption may therefore lead to hostility if individuals disagree. False consensus has been related to difficulties with appreciating other people's points of view and such misunderstandings can lead to heightened provocation and subsequent anger arousal and/or aggressive behaviour (Russell & Arms, 1995).

The term *anchoring effects* refers to the tendency for a person to cling to 'first impressions' of another individual, of their behaviour, or of a situation, regardless of later incompatible evidence. Kremer and Stephens (1983) found that mitigating information can either inhibit or escalate anger arousal depending on when this information is presented. Additionally, mitigating information can be influenced by individual information processing goals, emotional disposition, and perceptions of the likelihood of harm (Johnson & Rule, 1986).

Cognitive Arousal and Transfer Effects. Research on cognitive factors involved in anger arousal, for example, such as the cognitive biases discussed above, has shown that excitatory residues of previous arousal can contribute to the intensity and speed of subsequent arousal experiences (e.g. Zillmann & Bryant, 1974). If this is the case, cumulative transfer effects may explain how anger can become over-aroused, leading to the affective experience of unhealthy (or chronic) anger and the behavioural expression of violence. In addition, individual differences in cognitive appraisals affect the level of anger arousal experienced. Levels of both cognitive and physiological anger arousal

(and their combined effects) may influence the way in which anger is expressed and regulated.

The Behavioural Expression of Anger

The behavioural expression of anger refers to those behaviours that follow the cognitive processing that takes place in response to real or imagined contextual cues (Novaco, 1976, 1994). These responses may be manifested in either the internalisation of anger affect (e.g. physical ill-health or depression) or the externalisation of anger affect (e.g. aggression or violence).

The way in which cognitive processing is most closely linked to action is through an *action impulse* (Novaco, 1994). An *action impulse* is a behavioural trigger, mediated by cognitive processing, that appraises behavioural responses to provocations and prompts the individual to act accordingly. This action impulse is key to the inter-relationship between thoughts and behaviours because it is controlled by both internal and external inhibitory mechanisms. Inhibitory mechanisms encourage the adaptive use of anger: they function to regulate anger affect appropriately and also function to prevent anger from manifesting in maladaptive behaviours propelled by dysfunctional anger.

It follows, therefore, that individuals who have problems regulating their anger, and who express the emotion too quickly and easily, are experiencing a dysfunction within their action impulse in their network of anger schemas.

Functional and Dysfunctional Anger

Novaco (1994; 2007) emphasises the functional nature of anger in order to demonstrate how anger can become problematic. Unlike earlier anger researchers, he does not focus on anger as an initially problematic emotion leading to negative

consequences. To Novaco, anger becomes dysfunctional when anger experience and anger expression have a predominantly negative effect upon the individual experiencing the anger (such as having a heart attack) or upon other individuals (such as their being the victim of an 'angry' aggressive or violent act). Anger dysfunction occurs when anger it is not appropriately regulated. Anger regulation is a cognitive process assisted by an action impulse (Novaco, 1994). Healthy levels of regulation depend on the content and efficiency of the individual's anger schemas and also on the degree to which these schemas are affected by cognitive biases, other cognitive systems, physiological state, by social relationships, and by other factors within the environment.

Novaco (2007) considers that a balanced view of the functions and dysfunctions of anger is crucial for a true appreciation of how such functions might become maladaptive. This balanced view would help researchers understand how anger problems can be modified by anger management or treatment (e.g. Novaco, 1975, 1994). In addition, this balanced approach to anger considers the positive, self-asserting, and mobilising effects of anger over the more commonly emphasised negative effects. A primary focus on anger as dysfunctional and uncontrollable can lead to a failure to appreciate how automatic mediating factors like schemas and cognitive appraisals may modify behaviour. This primary focus may also miss the evolutionary significance of anger (Novaco, 1994; Novaco & Welsh, 1989). Furthermore, as Robins and Novaco (1999) note, other cognitive systems can be significant in influencing anger. For example, important interactions between the cognitive system of anger and other systems such as the attachment system should not be overlooked (Mikulincer & Shaver, 2003). If anger is viewed as an adaptive emotion, influencing and influenced by other cognitive systems, then it is possible to consider what to do if anger experience and anger expression become dysfunctional.

This spotlight on anger from an applied perspective is fundamental to Novaco's theory. Novaco (2007) highlights eight core functions of anger. These are (i) energy, where anger functions to help an individual fight in defence; (ii) focus, where anger helps to focus attention on a threat; (iii) expression, where anger functions to show displeasure to prompt resolution of a conflict; (iv) defence, where anger is used to suppress fear and to defend oneself by distancing from the threat; (v) potentiation, where anger empowers an individual to feel in control; (vi) instigation, where anger functions to instigate an aggressive act via an 'action impulse'; (vii) signal, where anger enables the individual to identify the importance of the personal state within the situation; (viii) dramatisation, where anger functions to act out the social role based on social schemas.

Associates of Dysfunctional Anger

Generally, a functional experience of anger is characterised by largely unbiased cognitive processing (or at least an awareness of the effects of cognitive biases), and by self-control over an inappropriate 'acting-out' of anger. Dysfunctional anger can lead to unhealthy outcomes that have a significantly negative impact upon the individual or others. Dysfunctional anger has been characterised by prolonged and high levels of physiological arousal, excessive rumination, repetitive thoughts about a provoking event, an inability to regulate anger affect, suspiciousness, hostile attitude, and by the increased risk of expressing anger behaviourally as an aggressive or violent act (Novaco, 1975, 1994).

Dysfunctional anger has been associated with numerous problematic outcomes (e.g. Eckhardt & Deffenbacher, 1995; Miller, Smith, Turner, Guijarro, & Hallet, 1996). Amongst these outcomes are a range of health issues such as hypertension (Engebretson, Matthews, & Scheer, 1989; Novaco, 1992), coronary heart disease,

carotid and coronary atherosclerosis (Julkunen, Salonen, Kaplan, Chesney, & Salonen, 1994; Ketterer, 1996; Kubzansky et al., 2006; Kubzansky & Kawachi, 2000; Miller, Smith, Turner, Guijarro, & Hallet, 1996), and self-directed violence as with suicide (Kotler et al., 1993). Furthermore, studies investigating alcohol abuse and anger have firmly established a link between dysfunctional anger (low anger control and trait anger) and aggression-facilitating effects (Chermack & Giancola, 1997; Parrott & Giancola, 2004).

As a symptom of behavioural, emotional, and mental problems, dysfunctional anger has also been closely linked to oppositional defiant disorder, conduct disorder, borderline personality disorder, major depressive disorder, antisocial personality disorder, some types of schizophrenia (American Psychiatric Association, 2000), and attention deficit hyperactivity disorder (Brown, 2002). Importantly, dysfunctional anger has never, in isolation, been considered to be a disorder in its own right in formal diagnostic terms. The closest association between dysfunctional anger and behavioural and mental disorders is with intermittent explosive disorder, where anger is seen as an impulse control problem and is manifested in extreme outbursts of 'aggressive behaviour' or violent acts (American Psychiatric Association, 2000).

Dysfunctional anger has also been linked consistently to interpersonal violence, (Blackburn, 1993; Craig, 1982; Levey & Howells, 1990; Megargee, 1966, 1973; Monahan & Steadman, 1994; Monahan et al., 2001; Novaco, 1994; Zamble & Quinsey, 1997), at times with a corresponding diagnosis of mental disorder (Craig, 1982; Novaco, 1994; Monahan & Steadman, 1994; Monahan et al., 2001). This body of research concludes that anger is often a precursor to impulsive-affective violence. Impulsive-affective violence is characterised by both high levels of individual physiological arousal and the belief that harming another individual will reduce an

aversive affective state. Impulsive-affective violence has been distinguished from instrumental violence which is seen as violence that is distinctly unemotional, goal-directed, and planned (Blackburn, 1993). Research on anger and interpersonal violence has also consistently found that violent offenders score considerably higher on measures of hostility and violence than non-violent offenders (e.g. Craig, 1982; Monahan et al. 2001; Selby, 1984). Anger has been identified as the most commonly reported emotion prior to a violent offence (Zamble & Quinsey, 1997).

Dysfunctional anger has therefore been linked to a variety of negative effects, including aggression and violence. Novaco's concept of anger focuses particularly on how dysfunctional anger leads to violence and the approach has a firm eye on the treatment and management of anger in this form. Importantly, Novaco has noted that other cognitive systems may have some influence on how anger functions (e.g. Robins & Novaco. 1999). Mikulincer and Shaver (2003) have also noted that the adult attachment cognitive system affects how other cognitive systems operate. As anger has been shown to play an important part in attachment processes (Bowlby, 1973 1988), particularly in relation to aggression and violence (Lafontaine & Lussier, 2005) there should be profit in examining how the anger and attachment systems interact.

Thesis Definition of Anger

This thesis uses both a phenomenological definition of anger as presented by DiGiuseppe et al. (1994) and a multidimensional definition of anger as presented by Novaco (1994).

According to DiGiuseppe et al., (1994), anger is an, "internal, mental, subjective feeling-state with associated cognitions and physiological arousal patterns" (p.19). This definition is used here when internal experiences of anger (thoughts and physiological arousal), not anger behaviour, are being assessed.

Novaco (1994) defines anger as a subjectively experienced, adaptive, and complex emotion that can have both positive and negative effects on an individual. Therefore, anger can be experienced adaptively or maladaptively. In addition, Novaco defines anger as a contextually elicited emotion, that is, it is an affective state triggered by a cue either in the physical surrounding environment or by a cue held within procedural memory (a memory that has become schematised). Anger comprises both physiological and cognitive components that are 'inter-affective' (see Novaco, 1976, 1994). Novaco (1994) continues to define anger as an emotion that is affected by threat and provocation. In order for the emotion to remain functional, anger requires appropriate regulation, neither under nor over regulation (Novaco). Interactions between external and internal perception and between arousal and cognition, lead to behavioural responses that can sometimes be an aggressive or violent act (where violence is a more extreme form of aggression, such as murder, see Chapter 1). However, a behavioural response is not necessarily dysfunctional – a behavioural response may instead lead to the effective management of a disagreement between people.

Anger is not aggression; anger can be present without aggression and aggression can be present without anger. In this thesis, Novaco's full definition is used when anger is examined as a multidimensional construct, comprising both the phenomenological aspects of arousal and cognition, but also the behavioural aspects of anger, which include impulsive reaction, verbal aggression, physical confrontation, and indirect aggression. The phenomenological definition of anger (DiGiuseppe et al., 1994) is used in this thesis when aggression is examined as a specific correlate of anger (see Study Two and Three). DiGuiseppe and Tafrate (2007) emphasise that anger is an emotion and aggression is a behaviour. If an examination is made of the items on the behavioural component of the Novaco anger scale, it is clear that many of these items

relate to aggression. Therefore, in this circumstance, anger is assessed only by arousal and cognition components in order to avoid a conceptual overlap of items between the Novaco (1994; 2003) anger behaviour component and the items on the Buss and Warren (2000) Aggression Questionnaire.

CHAPTER THREE

ATTACHMENT THEORY

Attachment theory relates to a collaborative emotional bond, comprising care-giving and care-seeking, that exists within close relationships (e.g. Bowlby 1982/1969). The prototypical attachment bond is seen to be between the child and the caregiver (often the mother) and is also seen to provide the individual with a comparative baseline to negotiate other social relationships in adolescence and adulthood. Attachment theory describes the processes involved in social and emotional interaction that lead to attachment behaviour. Bowlby (1980) states:

> Attachment behaviour is conceived as any form of behaviour that results in a person attaining or retaining proximity to some other differentiated and preferred individual…attachment behaviour leads to the development of affectional bonds or attachments initially between child and parent and later between adult and adult. The forms of behaviour and the bonds to which they lead are present and active throughout the life cycle…The goal of attachment behaviour is to maintain certain degrees of proximity to, or communication with, the discriminated attachment figure (p. 39-40).

Attachment behaviour is represented in specific types of attachment-related behaviours that are called attachment styles. These styles are behavioural patterns of interaction that are influenced strongly by attachment schemas and real-life experience. The original categories of attachment style were termed secure, avoidant, and resistant-ambivalent (Ainsworth, 1967; Ainsworth, Blehar, Waters, & Wall, 1978). Later researchers identified another category, termed disorganised attachment style (Main,

Kaplan & Cassidy, 1985; Main & Solomon, 1990). Social psychological and personality researchers (e.g. Bartholomew, 1990; Bartholomew & Horowitz, 1991) describe a category of attachment perceived to be conceptually similar to disorganised attachment called fearful-avoidance (Simpson & Rholes, 2002).

The thesis definition of attachment, following Bowlby (1969) and Mikulincer & Shaver (2003), is that attachment is an emotional bond that connects an individual with one or more significant others. Attachment bonds are regulated by a cognitive system, which is activated when there is a perceived threat to emotional or physical safety. Reponses to attachment system activation first involve a distress reaction such as anxiety, where the purpose of anxiety is to gain and maintain proximity to an attachment figure. Second, these responses occur in the form of behaviours set up either to maintain that proximity to or develop distance from the significant other(s). Which behavioural response occurs is dependent on various situational and individual factors that are discussed in more detail in the following sections.

Origins of Attachment Theory

Attachment theory, initiated by Bowlby (1982/1969, 1973, 1980), is a thoroughly examined research area. The foundations of attachment theory lie in earlier concepts in psychology and ethology (Lorenz, 1952, as cited in Mikulincer & Shaver, 2007), particularly those by Freud (1961), who attributed the infant's need to seek proximity to a caregiver as a learned motivation taken from instinctual drives, libidinal gratification, and from feeding experiences with the mother. Erik Erikson's work was also influential on Bowlby. Erikson (1950) stated that a child's ability to trust their parents to meet his or her needs is a basic requirement for healthy social and emotional development.

However, Bowlby's (1982/1969, 1973, 1980) perspective represented a shift from the psychoanalytic opinions of researchers of the time. This shift was seen in Bowlby's divergence from Freud's notions of instinctual drive reduction and from the pleasure principle (a primitive function that strives to fulfil basic urges like hunger, thirst, anger, and sex). Instead, Bowlby explored how ethology, evolutionary theory, cognitive control systems, and object relations theory could combine to explain the process of emotional attachment between individuals. Another significant shift in approach between Bowlby and Freud was that Bowlby used his integrated framework to test hypotheses empirically by taking principles from experimental psychology and the scientific method. By these means, Bowlby would arguably have been able to develop his theoretical framework with greater scientific vigour than Freud's methods had allowed.

The convergence of principles from the range of earlier approaches into attachment theory makes available a comprehensive model that accounts for how people process information based on their experiences with significant others. Attachment theory also explains individual differences in responses to attachment-related emotions. The theory comprises interacting components of physiology, affect, cognition, and behaviour. In terms of structure, Bowlby's theory is similar to the structure of both the General Aggression Model (Anderson & Bushman, 2002) and Novaco's (1994) theory of anger because all three models present an evolutionarily driven mechanism that includes physiology, cognition, and behaviour.

Attachment System, Behaviour, and Styles

Attachment System. Bowlby and Ainsworth described attachment as being formulated and maintained through a cognitive-based attachment system and through attachment behaviour. To Bowlby, the attachment system is a cognitive, innately

predisposed, and evolutionary selected mechanism that 'activates' when an individual perceives a threat. Activation involves both physiological and cognitive arousal. In the context of human behaviour, this attachment system contains thoughts and beliefs that manifest in automated attachment schemas. All cognitive systems have such characteristics, and therefore it is reasonable to suppose that the cognitive systems moderating anger and aggression may interact schematically with those frameworks that represent attachment processes. As noted in Chapters One and Two, schemas are artificial knowledge structures developed by the build-up of thought-based neural networks. Attachment schemas are specific knowledge structures that contain memories of a personal 'self and other' interaction that are stored in implicit long-term memory, and they contain implicit procedural rules for interacting with another person based on expectations of future interactions.

For example, an attachment schema may contain information within memory about several experiences between a child and the mother. The number of experiences required for a schema to be set depends on individual differences and on the intensity of the experience. Information within memory could include memories of attention being received if the child smashes something when his or her mother is in the next room. If this experience repeats, over time, it is likely that the child's behaviour will be influenced by the habitual (schematised) cognitive belief that smashing things leads to the attainment of physical proximity with the mother. Therefore, the child may start smashing things as soon as he or she needs attention rather than using a different behaviour to attract attention. In this way, schemas affect individual behaviour towards the social world and can be resistant to change because they are automatic mechanisms that are not immediately accessible to consciousness.

Attachment schemas fit within what Bowlby (1982/1969) originally termed internal working models. Internal working models are an individual's internalised representations of the relationship between themselves and an attachment figure and are central to the attachment system. These working models affect the perception of the 'self' as an autonomous agent, and the perception of an 'other' as a separate agent from the self. Attachment schemas are the cognitive sub-structures that operate within these higher-order working models. According to Feeney, Noller, and Roberts (1999), internal working models function, "to predict the behavior of others and to plan one's own behavior to achieve relational goals" (p. 192).

Influenced by observations from Robertson and Bowlby (1952, as cited in Bowlby, 1982/1969), Bowlby posited that the attachment system is critical to the development of the personality and is life-course persistent in that it becomes a prototype for social interaction (Bowlby, 1982/1969). Bowlby maintained that the system has evolutionary significance because it predisposes how a child interacts and negotiates with the outside world from birth, both for physical protection, specifically in early childhood, and for emotional protection and safety. Bowlby also states that schemas within the attachment system remain resistant (but not impossible) to change once the system is fixed (or schematised). In particular, he emphasised that the effective functioning of the attachment system is crucial in maintaining emotional mental health, adaptive social interaction, and positive self-esteem (Bowlby, 1988). If he analysis is correct then ineffective functioning of the attachment system may lead to difficulties in other behaviours like care-giving to others, going to work, and social interaction, as well as leading to emotional (or psychosomatic) ill-health and problems with self-esteem. Importantly, problematic functioning of the attachment system may influence the way in which other cognitive systems react to an environmental trigger.

Effective functioning of the attachment system is understood to mean achieving the required goals set by this system - emotional regulation, brought about by feelings of safety and protection from harm - and either physical or imagined proximity to an attachment figure. The way in which the attachment system achieves its set goals is by the use of what has been termed a primary attachment strategy.

The primary strategy of the attachment system is to achieve the specific set-goal of felt security in response to an attachment-related threat such as the perception of a separation, a loss, or a danger (Stroufe & Waters, 1977). Felt security is an individual perception of emotional balance and safety dependent on the responses of the attachment figure, and this perception leads to efficient emotional regulation and developmental independence. When felt security is achieved, the attachment system deactivates and settles into a state of emotional stability. When the system is stable, affective responses like attachment anxiety dissipate, allowing emotional (or physical) energy to be released for other things. System stability occurs when an individual directs attention away from proximity-seeking and towards independent autonomous behaviour. Felt security therefore permits other socially adaptive behaviours like affiliation and care-giving to operate effectively, while a lack of felt security encourages dependency and a fear of independent behaviours (Mikulincer & Shaver, 2003; Shaver & Hazan, 1993). If attachment system activation does not result in felt security, secondary attachment strategies are used. These strategies are individual adaptations to personal circumstances and can lead to a diversity of attachment behaviour. Secondary attachment strategies are alternative ways of regulating the attachment system. They can be anxious strategies, which would lead to intensified proximity-seeking, or avoidant strategies, which would lead to a compulsive self-reliance, or fearful strategies, which would lead to an unpredictable combination of both intensified proximity-

seeking and compulsive self-reliance. The secondary strategies used depend on the situation and on individual differences.

Attachment behaviour. Attachment behaviour is action originating from the cognitive processing of attachment-related personal experience (Bowlby, 1982/1969). The primary attachment behaviour that results from attachment system activation is proximity-seeking, where the individual will seek either physical (or if more developmentally mature, imagined) closeness to the attachment figure in order to achieve felt security.

Emotional responses that occur once the attachment system activates are dependent upon individual 'schematised' cognitive and behavioural styles of attachment. Behavioural responses are dependent on attachment schemas, and such behaviours are represented by particular ways of interacting with other people. These ways of interacting are called *attachment styles or types.* In response to a perceived threat, the attachment system automatically activates schemas that in turn influence the type of attachment behaviour that occurs. The purpose of a particular behavioural response is to regulate distress, anxiety, or fear that may be associated with a perceived threat to emotional or physical security. These behavioural responses are heavily affected by attachment styles.

Another example of attachment behaviour that is present within attachment styles is an expression of functional or dysfunctional anger. Bowlby (1973) stated that anger occurs when proximity-seeking is failing, and when an individual is 'protesting' at the time of the attachment figure's return from an absence or separation. Bowlby maintains that anger can be used to strengthen bonds, but at other times anger can weaken them if the emotion is too frequent, too intense, or if it serves to hurt oneself or

another person. This description of anger is reminiscent of definitions of functional and dysfunctional anger (e.g. Swaffer & Hollin, 2000; 2001).

Attachment styles. Mary Ainsworth was the first to classify attachment styles in her research on childhood attachment. She devised a procedure called the 'Strange Situation' that involved separating children from their primary caregiver, introducing a stranger, and observing the child's behaviour on reunion with the caregiver. Based on her observations in both laboratory and home settings, Ainsworth developed categories of attachment style that she described as secure, avoidant, and resistant-ambivalent. Later researchers identified another category, termed disorganised attachment style (Main et al., 1985; Main & Solomon, 1990).

Prototypical attachment styles. Originally, three types of attachment style were posited (Ainsworth, 1967; Ainsworth et al., 1978). These were secure attachment, described as the primary, or normative, attachment strategy (Mikulincer & Shaver, 2003; 2007), and anxious/resistant and avoidant attachment, described as the secondary or maladaptive attachment strategies. A fourth style, disorganised attachment, was identified by Main and Solomon (1990) and is also considered to be a secondary attachment strategy, although it is not as extensively examined in the cognitive systems approach to attachment (Mikulincer & Shaver, 2003).

Attachment styles have been described in detail by Ainsworth et al. (1978) and Main and Solomon (1990). Secure attachment exists when a child is comfortable to explore independently, interacts with strangers, and when the child misses the caregiver on separation by showing some distress. Importantly, the child with a secure attachment style greets and initiates contact with the caregiver on reunion after the separation.

Resistant-ambivalent attachment (commonly described as anxious or preoccupied attachment) is characterised by a difficulty with independent exploration, by 'clinging' behaviours, by evidence of anxiety when interacting with strangers, and by an intense experience and display of distress at separation. Characteristically, anxiously attached children show continued signs of distress with the caregiver and are resistant to attention provided by the caregiver on reunion.

Avoidant (also described as dismissing) attachment exhibits contrary characteristics to anxious attachment in that it combines an active avoidance of the parent with an apparently comfortable interaction with strangers. Individuals with this style focus on non-human objects and fail to express any emotion on both separation and on reunion with the caregiver. Importantly, the child appears to have an emotional disconnection with the caregiver.

In contrast to the other three attachment styles, disorganised attachment is a fourth type of attachment that is represented by no organised pattern of behaviour (Main & Solomon, 1990). Disorganised attachment is often considered to be conceptually aligned with fearful attachment, which is the term used by personality researchers since the 1980s (Bartholomew, 1990). Anxious attachment style, for example, is organised in the sense that the responses are decisively anxious, not avoidant in behavioural style to the attachment figure, and similarly, avoidant attachment is organised in such that it is decisively avoidant and not anxious in behavioural presentation. Disorganised attachment style, however, is seen to be distinct from the other three styles in that it does not show a decisive or organised pattern of behaviour (Ainsworth et al., 1978; Main & Solomon, 1990). This style is characterised by unpredictable emotional responses, apparently fearful behaviour towards the caregiver, and responses that

fluctuate between the characteristics of anxious attachment (intensive proximity-seeking) and avoidant attachment (compulsive self-reliance).

Two theoretical explanations for the cognitive underpinnings of fearful attachment have been offered (Mikulincer & Shaver; 2003; Simpson & Rholes, 2002). One explanation is a collapsed defences approach that describes fearful individuals as a sub-type of avoidant attachment style. Collapsed defences is a term that refers to an inability to keep threatening and painful stimuli fully out of conscious experience compared with standard attachment avoidance that is thought to be characterised by compulsive self-reliant behaviour, and by the use of skills to hold painful memories away from awareness. This conceptualisation would suggest that fearful individuals attempt to use avoidant strategies, but as they are not effective, their defences 'collapse', and they resort to anxious strategies at these times. This collapsing of defences suggests that fearful individuals have organised sub-schemas, ("e.g., if strategy X is not effective, utilise strategy Y"). The second theoretical approach posits that fearful individuals have cognitively disorganised schema (see Simpson & Rholes, 2002). In this view, disorganisation inevitably leads to an incoherent coping style and an unpredictable (instead of predictable "if not X then Y") use of both anxious and avoidant strategies.

Adult Attachment Styles

Although Bowlby (1988) viewed attachment styles as persisting throughout the life-course, early attachment theory did not specifically focus on the effects of adult-adult attachment insecurity. It is perhaps for this reason that adult attachment styles were not examined until the 1980s (Hazan & Shaver, 1987). Since then, however, many researchers have explored attachment styles and their correlates beyond childhood (e.g. Bartholomew, 1990; Bartholomew & Horowitz, 1991; Collins & Read, 1990; Mikulincer & Shaver, 2003).

Since the exploration of childhood attachment styles began (Main et al., 1985; Main & Goldwyn, 1984), social and personality psychologists examining adult romantic attachments have questioned how attachment theory might be applied to adult interactions. These researchers have also explored how these styles relate to other personality variables (see Bartholomew, 1990; Bartholomew & Horowitz, 1991; Brennan, Clarke, & Shaver, 1998; Cassidy & Kobak, 1988; Fraley & Shaver, 2000; Hazan & Shaver, 1987; Shaver, Belsky, & Brennan, 2000; Mikulincer & Shaver, 2003).

The adult-adult attachment perspective extends from Bowlby and Ainsworth's seminal research on attachment in childhood (Ainsworth, 1967; Ainsworth et al., 1978, Bowlby, 1982/1969, 1973, 1980). Hazan and Shaver (1987) were the first researchers to extend Bowlby and Ainsworth's categorisations of infant attachment into adult attachment typologies. They were the first to argue that adult-adult relationships are cognitively mediated by the attachment system and therefore must follow similar patterns to childhood attachment processes to the caregiver.

According to Hazan and Shaver (1987), the bond that develops between adults in intimate relationships is clearly comparable to the prototypical attachment bond between the infant and caregiver. They noted certain characteristics that infant-caregiver and adult-adult attachment behaviours share. Amongst these characteristics were feelings of felt security when the significant other is close by and is responsive to emotional needs, a mutual engagement in intimate physical contact (although differing in the sexual component), feelings of insecurity when the 'other' is not available, and the sharing of novel events (Hazan & Shaver).

Hazan and Shaver (1987) provided an argument for the existence of three internal working models of adult attachment, which directly parallel Ainsworth's original infant categories (Ainsworth et al., 1978). The secure (or primary) attachment

style develops with the repeated/predominant use of the route to autonomous behaviour without the use of excessive protest or despair at separation from an attachment figure. The insecure (or secondary) attachment styles develop with repeated/predominant use of excessive protest (anxious attachment) or detachment (avoidant attachment). These adult categories and their descriptions are presented in Table 2. These categories were originally considered to be mutually exclusive (Hazan & Shaver, 1987). The categories presented in this table describe the original key characteristics that describe adult attachment style in adults.

Table 2.

Hazan and Shaver's Adult Attachment Typologies (adapted from Hazan & Shaver, 1987, p. 515).

Attachment style	Descriptor
Secure	I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't worry about being abandoned or about someone getting too close to me.
Avoidant	I am somewhat uncomfortable being close to others. I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close and often others want me to be more intimate that I feel comfortable being.
Anxious	I find that others are reluctant to get as close as I would like. I often worry that my partner doesn't really love me or won't want to stay with me. I want to get very close to my partner and this sometimes scares people away.

Modern Conceptualisation of Attachment Styles

After Hazan and Shaver (1987) introduced attachment theory to adult-adult relationships, a plethora of research on conceptualisations of adult attachment ensued (e.g. Bartholomew, Henderson, & Dutton, 2001; Bartholomew & Horowitz, 1991; Bartholomew & Shaver, 1988; Collins & Read, 1990; Fraley, Waller, & Brennan, 2000; Hazan & Shaver, 1987; Shaver, Belsky, & Brennan, 2000).

Of particular significance was the research reported by Bartholomew (1990) and Bartholomew and Horowitz (1991). These researchers advanced Hazan and Shaver's (1987) research on adult-adult /self-other interactions by proposing a taxonomy of these styles based on self-evaluations of either positive or negative views of the self and the other. Bartholomew (1990) was the first to conceptualise fearful attachment in the adult attachment arena and, as noted previously, this style is often conceptually aligned with disorganised attachment (Ainsworth et al. 1978; George, Kaplan, & Main, 1985; Main et al., 1985). The fourth attachment style is represented in Figure 3.

		Thoughts of Self	
		Positive	Negative
Thoughts of Partner	Positive	**Secure** Comfortable with intimacy and autonomy	**Preoccupied** Preoccupied with relationships
	Negative	**Dismissive** Dismissing of intimacy Strongly independent	**Fearful** Fearful of intimacy Socially avoidant

Figure 3. Four-category Model of the Self and Other (adapted from Bartholomew, 1990).

Bartholomew's (1990) four-category model of the self and other (Figure 3) illustrates four types of attachment styles: secure, anxious, avoidant, and fearful. Bartholomew (1990) referred to adult anxious attachment as preoccupied attachment and adult avoidant attachment as dismissing attachment (see Figure 3).

Bartholomew (1990) describes how individuals with secure or avoidant attachment styles hold positive perceptions of the self. These perceptions include positive self–esteem and a belief that the self is worthy of love. However, the model also shows that avoidant individuals, unlike secure individuals, have a negative view of others. This negative view leads to the downplaying of close relationships, self-reliance, and rigid self-sufficiency, reducing the likelihood of proximity-seeking when faced with a threat.

Correspondingly, the model shows that individuals with either an anxious or fearful attachment style have negative perceptions of the self and doubt their own worth and competence (see Figure 3). Therefore, such individuals have lower self-esteem compared with individuals who display either secure or dismissing styles. However, anxious individuals have a positive perception of the other, which might lead them to proximity-seek excessively even though they doubt their personal self-worth in receiving love and attention. Individuals with a fearful style have a negative view of themselves and of others and having both these beliefs may lead them to become socially withdrawn and to be less likely to seek proximity to an attachment figure. As a result of the negative representations of both the self and the other, fearful-avoidant attachment is often considered the style that leads to the greatest problems in terms of adaptive social development (e.g. Brennan & Shaver, 1998; Shaver & Clarke, 1994).

Bartholomew's (1990) model of the self and other is valuable in that it provides a very clear theoretical framework for the four designated types of adult

attachment. A limitation of this model, however, is that it assumes that an individual sits within one specific type of attachment and it does not emphasise that there are degrees of each type of attachment style. For example, one individual may show minor degrees of avoidant attachment as a style, but another person may show extreme avoidance to a significant other. Within this model both individuals fall into the same category and this model does not clarify the more subtle within-style differences. In addition, earlier models (Bowlby, 1982/1969) assume that attachment styles are likely to be the same across different relationships. For example, it is possible that an individual may have a secure attachment to the mother and an avoidant attachment to the father. In this example, there are two predominant types of attachment that can be described as specific attachment styles, but these styles may also combine to provide an overall different, or averaged, style of attachment in terms of relationships in general.

These measurement limitations of Bartholomew's (1990) model were overcome by later research that, while appreciating the categorical approach to attachment, also characterised individual differences within each attachment style by conceptualising attachment as a dimensional construct (Brennan et al., 1998; Fraley, Niedenthal, Marks, Brumbaugh, & Vicary, 2006; Fraley & Waller, 1998). In addition, attachment styles viewed as dimensional constructs enabled researchers to conceptualise how attachment schemas differ between more than one attachment figure (e.g. an intimate partner versus a same-sex best friend), and how these schemas might be modified in the light of experience (e.g. Brennan et al.). Examples of research that examined multiple attachments include studies by Gomez and McLaren (2007) and Noom, Dekovic, and Meeus (1999).

Gomez and McLaren (2007) examined aggression in the context of maternal and paternal attachment and self-esteem. The key findings relating to aggression were

that both maternal and paternal secure attachments were negatively related to aggression. They also found that positive self-esteem was related to lower scores on aggression.

Noom et al. (1999) noted differences between parental attachment and peer attachment to a significant friend. They found that parental secure attachment was a protective factor for both externalising and internalising problem behaviours, whereas secure attachment to friends showed no relationship with problem behaviour. However, when high functional autonomy, a negative relationship with the father, and a positive relationship with friends were combined in a regression analysis, this combination within the model was related to the risk of problem behaviour. In terms of attachment, Noom et al.'s study suggests that it is parental (specifically paternal) insecure attachment that is the key correlate of problem behaviour.

Dimensional constructs of attachment have been examined by Fraley et al. (2006) but not in the context of aggression. As well as examining attachment dimensionally, Fraley et al. also examined attachment from a generalised perspective. Generalised attachment is defined as an attachment score that is derived from the average sum of a selection of multiple attachment relationships. Fraley et al. measured generalised attachment insecurity using the authors'10-item shortened version of the ECR-R (called the Relationships Structures Scale). The Fraley et al. study looked at generalised attachment (as a composite score of attachment to the mother, father, partner, and best friend) and individual vigilance to socially and emotionally significant cues. The researchers found that participants who scored high on generalised attachment anxiety recognised the visual onset (start) and offset (end or change) of emotional faces faster than participants who scored low on generalised attachment anxiety. Markedly, Fraley et al. found that participants who scored highly on

generalised attachment anxiety recognised the onset and offset of angry faces faster than those participants who did not score highly on this measure. They also found that participants who scored highly on generalised attachment anxiety also made more perceptual errors in the facial recognition of emotion. This study by Fraley at al., although not focusing on aggression or violence, may suggest that participants high in generalised attachment anxiety are more likely to become aggressive faster due to a hostile attribution bias (Dodge & Crick 1990).

Shaver & Mikulincer's Integrative Model of Adult Attachment

Shaver and Mikulincer (Mikulincer & Shaver, 2003; Mikulincer, Shaver, & Pereg, 2003; Shaver & Mikulincer, 2002; Mikulincer & Shaver, 2007) have presented an integrated cognitive-behavioural model of the activation and dynamics of the adult attachment system which built on all previous models of attachment from Bowlby (1982/1969) and Bartholomew (1990), to Brennan et al. (1998) and Fraley et al. (2000).

The classic Bowlby/Ainsworth view of the primary aims of the attachment system underpins Mikulincer and Shaver's (2003) model. Primary aims are the regulation of distressed emotions in response to a threat cue, and the preoccupation with proximity attainment, either real or imagined, to the attachment figure (Ainsworth et al., 1978; Ainsworth, 1967; Ainsworth, 1991; Bowlby, 1973, 1980, 1982/1969, 1988; Brennan et al., 1998; Cassidy & Kobak, 1988; Dozier & Kobak, 1992; Fraley & Shaver, 2000; Lazarus, 1991; Main, 1995; Shaver, Hazan, & Bradshaw, 1988). As Mikulincer and Shaver's focus is on attachment in adults in whom schemas may have developed more fully than in children, The authors see proximity-seeking as something that can be achieved not just in real physical terms, but also through the accessing of attachment-related memories. The key characteristics of this model are shown in Figure 4 (Mikulincer & Shaver).

There are three components in the integrative model: attachment activation, the evaluation of attachment figure availability, and the evaluation of the feasibility of proximity-seeking. Mikulincer & Shaver (2003) posit that cognitive appraisal, both primary and secondary, is critical in the individual's decision to use either secure or insecure coping strategies in response to a threat (real or perceived). In addition to their proposed components, Mikulincer and Shaver also provide an account of how experiences can become organised as schemas in implicit memory through the build-up of hypothetical neural networks, and they explain how these networks affect the components of the model by modifying schematised responses to real or imagined cues.

Neural networks are central to the functioning of cognitive systems. A neural network is a set of interconnecting 'neurone-like' nodes and is theoretically based on the neural architecture of the brain (e.g. Rumelhart, McClelland, & The PDP Research Group, 1986). Neural networks are held to be the building blocks of schemas and are part of what constitutes implicit (or procedural) memories. Implicit memory is a type of long-term memory characterised by a lack of 'conscious awareness' in recalling prior experience, (see Shanks and St. John (1994), for a discussion on implicit memory). These networks are established by the repeated use of either excitation (repeated use) of nodes or by the inhibition (reduced use) of these nodes. These networks lead to one strategic coping strategy that is predominant over all other possible strategies by the strengthening of associative networks and the subsequent development of schemas.

Mikulincer and Shaver (2003) explain how such neural networking (and consequent attachment behavioural styles) might have an effect on mental health, future social interaction, self-esteem, coping with stress, anger experience, and anger proneness. The model, presenting all three components, is shown in Figure 4. Neural

networks are represented by the '-' route for inhibitory and the '+' route for excitatory neural networking.

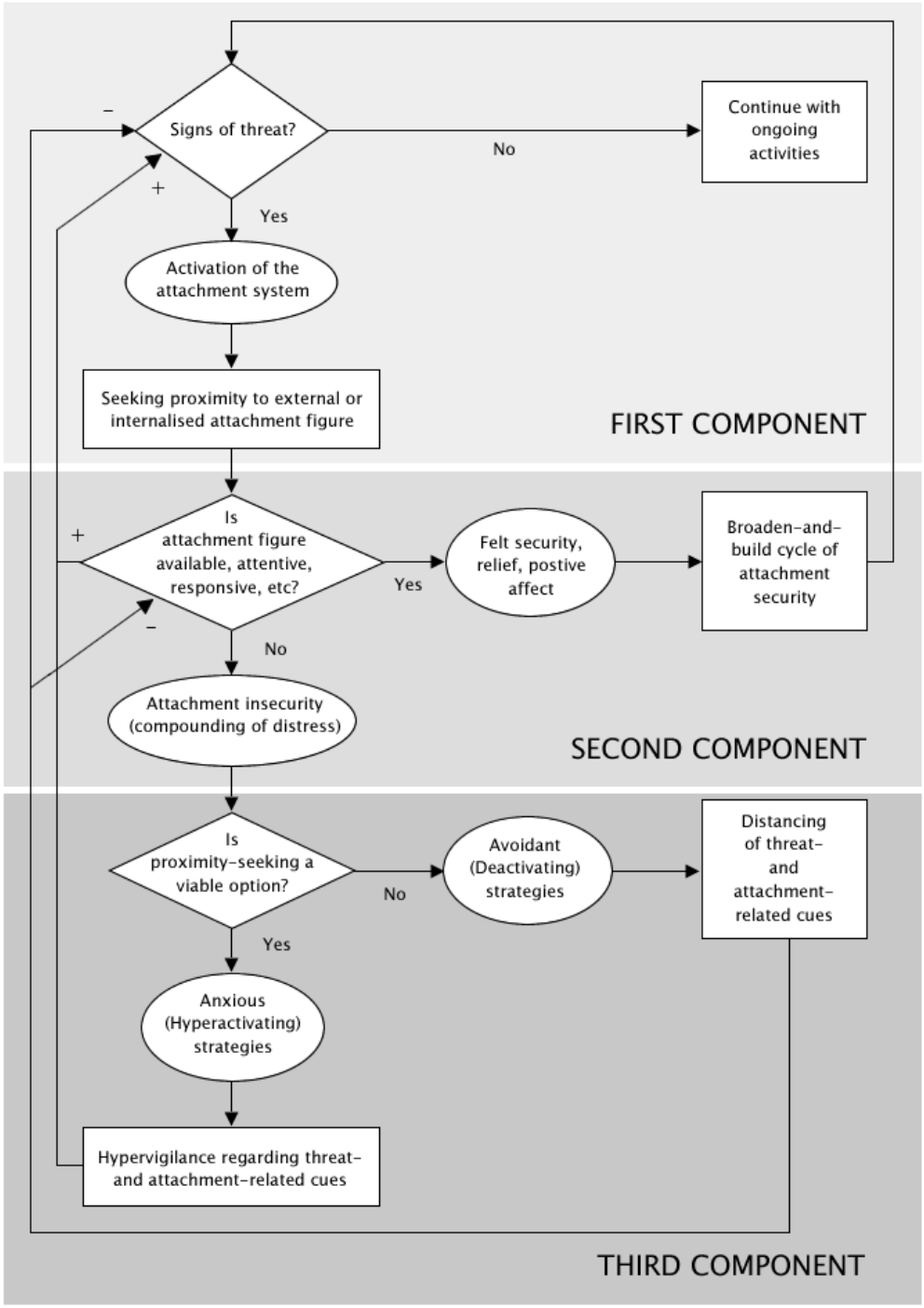

Figure 4. Integrative Model of the Activation and Dynamics of the Attachment System (Mikulincer et al., 2003).

First Component of the Integrative Model: Primary Strategy and Attachment System Activation

The first component of the integrative model describes the 'normative' or standard evolutionary adaptive response of the attachment system to a cue that is perceived to be a threat (after Bowlby, 1982/1969). This adaptive response consists of an *arousal* of the attachment system. This arousal comprises an increase in anxiety and fear, a heightened attention to attachment–related events (or themes), and an increased desire to seek proximity to an attachment figure. This part of the system monitors and evaluates threatening stimuli that are either real or *imagined*. Imagined stimuli, like thinking about separation from a person, are considered to be more likely to be accessible to awareness in later life because of an adult's greater experience of social interactions, and because of the subsequent further development of internal representations of the self and the other in memory (Mikulincer & Shaver, 2003).

As personal experience and memories affect how the attachment system functions, cognitive appraisal is seen as an essential factor in the activation of the attachment system. Attachment system activation, levels of this activation, and threat perception are dependent on both cognitive appraisal and on the threshold levels (the effect of excitation and inhibition of nodes) that exist within the neural networks that internally represent attachment-related themes (Mikulincer & Shaver, 2003; Shaver & Mikulincer, 2002).

Although this part of the model is said to be activated by a stimulus such as a perceived loss of an attachment figure, Mikulincer and Shaver (2003) emphasise the effect of anxious or avoidant attachment strategies on the degree to which threat perception and coping strategies are used once schemas are set later on in development. Mikulincer and Shaver (2003) describe their model using language from cognitive

psychology and therefore often refer to anxious strategies as neurally 'hyper-activating' and avoidant strategies as neurally 'de-activating'. For simplicity, the terms anxious and avoidant will be used here.

Mikulincer and Shaver (2003) also note that in addition to being consciously aroused, attachment system activation may be aroused *preconsciously*. Preconscious attachment cognitions are latent (or suppressed) attachment-related thoughts that are not explicitly accessible to working memory. However, these thoughts are readily accessible when elicited by attachment-related memory retrieval cues. Various studies have provided empirical support for the activation of the attachment system by attachment-related cues (Mikulincer, Birnbaum, Woddis, & Nachmias, 2000; Mikulincer, Gillath, & Shaver, 2002).

Second Component of the Integrative Model: Cognitive Appraisal of Attachment-figure Availability and Secure-based Strategies

The second component of the model is the cognitive appraisal of both attachment-figure availability and the sense of a secure base. This appraisal is based on the question, *"Is the attachment figure available, attentive, responsive?"* (see Figure 4). If the answer to this question is *"yes"*, a positive internal working model of the self and the other is reinforced, the appropriate neural network is strengthened, and the individual favours secure-based strategies.

The important point here is that these secure-based strategies are seen to be critical in the development of emotional stability and effective coping in times of stress or anxiety. These secure-based strategies are considered by Mikulincer and Shaver (2003) to be based on three central beliefs, "optimistic beliefs about distress management; a sense of trust in the other's availability and good will in times of need; and a sense of self-efficacy in dealing with threats" (Mikulincer & Shaver, 2003, p.78).

These secure-based strategies also allow other learning and exploration to be experienced, enhancing overall personality development, well-being, and autonomy. Importantly, Mikulincer and Shaver (2003) believe that consistent secure interactions in real experience are significant in the modification of attachment strategies from insecure to secure. These considerations have interesting implications for the 'treatment' of individuals with chronically accessible insecure models. The feasibility of schema modification (from insecure to secure) is supported by studies on secure attachment schema priming (e.g. Mikulincer & Shaver, 2001). These studies have most recently focused on augmenting compassion, altruism, and helping behaviours (Mikulincer, Gillath, Shaver, & Nitzberg, 2005; Mikulincer & Shaver, 2007).

Mikulincer and Shaver (2003; 2007) assert that the cognitive processing that occurs in components one and two of the model is biased subjectively by the previous use of specific attachment strategies and by the threshold levels of attachment neural networks in memory. Previous experience of attachment figure availability or unavailability, and the subsequent networks developed from this experience, are crucial in delineating differences between individuals in their internal working models, the schemas within them, and in subsequent social interaction through attachment style. For example, the build-up of excitatory neural networks representing an anxious working model of the self and other may result in a chronically accessible anxious model and lead to anxious attachment behaviour (e.g. clinginess). Likewise, the build-up of inhibitory neural networks representing an avoidant working model of the self and other may result in a chronically accessible avoidant model and lead to avoidant attachment behaviour (e.g. apparent emotional detachment).

Empirical support for this second component of the model (cognitive appraisal of attachment-figure availability) has included an examination of both the effects of the

subjective appraisal of attachment-figure availability and the effects of real contextual cues of an attachment-figure when using secure strategies (e.g. Brennan & Shaver, 1998; Mikulincer, Hirschberger, Nachmias & Gillath, 2001; Mikulincer & Shaver, 2001). These studies found that the use of secure-based strategies depended on how individuals' perceptions of reality and their predominant attachment style were inter-related.

Further Development of Secure-based Strategies within the Second Component of the Integrative Model

Mikulincer et al., (2003) have expanded the second component of the integrative model (see Figure 5). They describe a two-stage developmental sequence of secure-based strategies: the *consolidation of co-regulation* and the *consolidation of self-regulation*. The *consolidation of co-regulation* represents the development of the secure-attachment strategy and is dependent upon the influence of available attachment figures. The *consolidation of self-regulation* develops from co-regulation via three psychological mechanisms: self-expansion, transmuting internalisations (the internalisation of functions that were originally driven by the attachment figure, but develop to become part of the individual's "self"), and the activation of other behavioural systems. Therefore, having a strong positive attachment model in the early years may enable consolidation of co-regulation and self-regulation. Without such a model, it would not be possible for an individual to learn how to regulate emotion or to interact functionally with others later on in his or her psychological development.

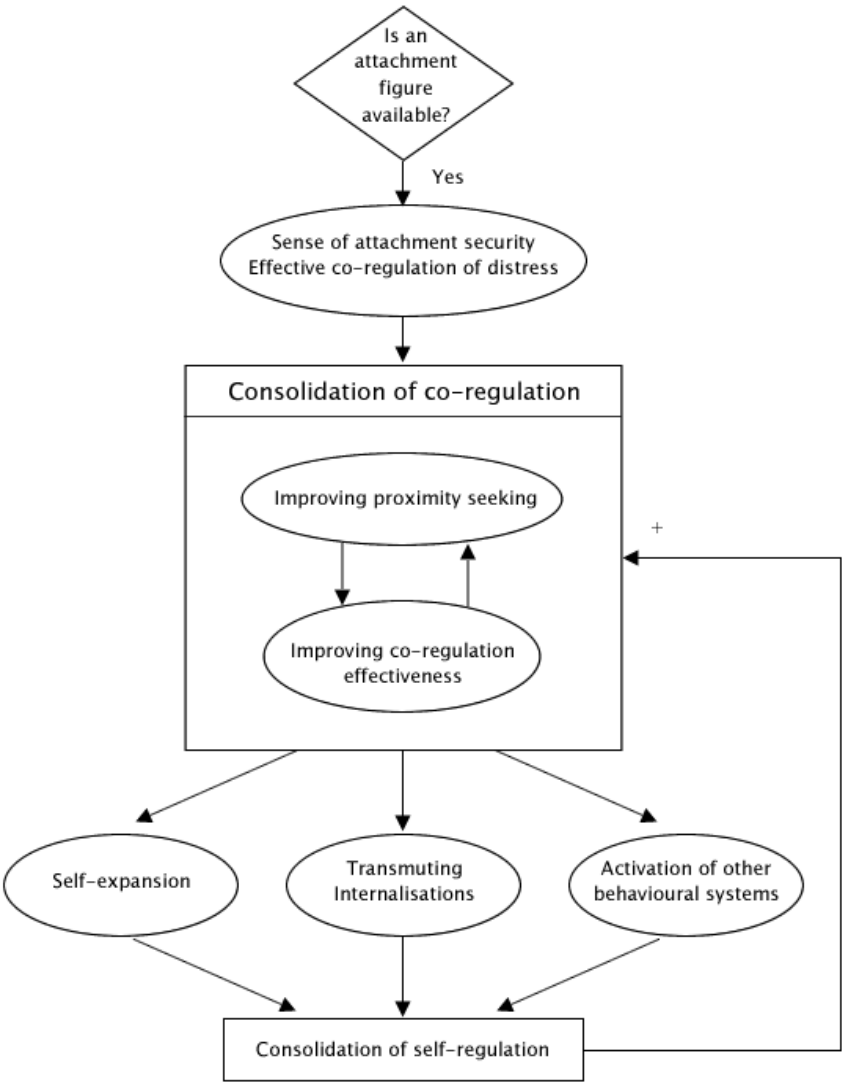

Figure 5. The Development of Secure-Based Strategies (according to Mikulincer et al., 2003.)

Self-expansion is described as the, "inclusion of a partner's resources and strengths in one's self-concept" (Mikulincer et al, 2003 p.94). Therefore, positive affect or any secure-based qualities shown by the partner (or by another significant attachment figure) would have a positive (security-enhancing) impact upon the passage from effective co-regulation to effective self-regulation. The activation of other behavioural systems refers to the broadening of an individual's capacities and autonomous

behaviour. This expansion of the model provides more detail on how an individual's attachment style can become separate from a relationship context. The further detail in this model could be applied to understanding general interactions and situations (Mikulincer et al., 2003). The focus on the development of security beyond reliance on the attachment figure has clear practical and theoretical implications for the regulation of negative affect, especially that affect which interacts with other cognitive systems, like anger or aggression.

When Secure Strategies fail: Insecure Attachment Strategies and the Third Component of the Integrative Model

The third component of the model (Figure 4) represents the use of insecure, or secondary, attachment strategies. These secondary strategies are forced to become active when secure-based strategies have not succeeded in stabilising the attachment system and in controlling distressed emotions based on an attachment-related threat. This third component focuses on whether intensified proximity-seeking (an increase in anxious attachment style behavioural characteristics) is likely to re-establish felt security. If the intensification of proximity-seeking behaviour is assessed, through cognitive appraisal, to be likely to result in felt security, anxious attachment strategies are used and anxious attachment style behaviour is observable. If the appraisal of the situation is that intensified proximity-seeking will not achieve felt security, deactivating strategies and defensive self-reliant behaviours will be used to re-establish emotional stability. Examples of self-reliant behaviour may include an apparent lack of interest in failure to gain attention from an attachment figure or in observable flattened affect. Repetition of the situation may lead to chronically accessible working models (or set-schemas) of anxious or avoidant representations and such chronic accessibility of these representations may be a significant factor in maladaptive development (Bowlby, 1988).

Much of the key research examining the third component of the system focuses on manifestations of attachment strategies in interpersonal and intrapersonal behaviour. For example, researchers have commented upon the management of interpersonal behaviour, such as comfortable self-disclosure (Mikulincer & Nachshon, 1991), coping with stressful events (e.g. Mikulincer, Florian, & Weller, 1993), heightened rumination (Mikulincer & Florian, 1998), and the experience and management of functional versus dysfunctional anger (Mikulincer, 1998).

Further Development of Insecure-based Strategies within the Third Component of the Integrative Model

As for the secure-based strategies, Mikulincer et al. (2003) describe, via a hierarchical connecting framework, the development of insecure-based strategies (see Figure 6). This expansion of the original model seeks to explain the situational and personal factors that they hypothesise may influence an individual's choice of an insecure strategy (either an anxious or an avoidant attachment strategy). The personal factors listed in Figure 6 surface from an individual's beliefs about attachment-figure unavailability.

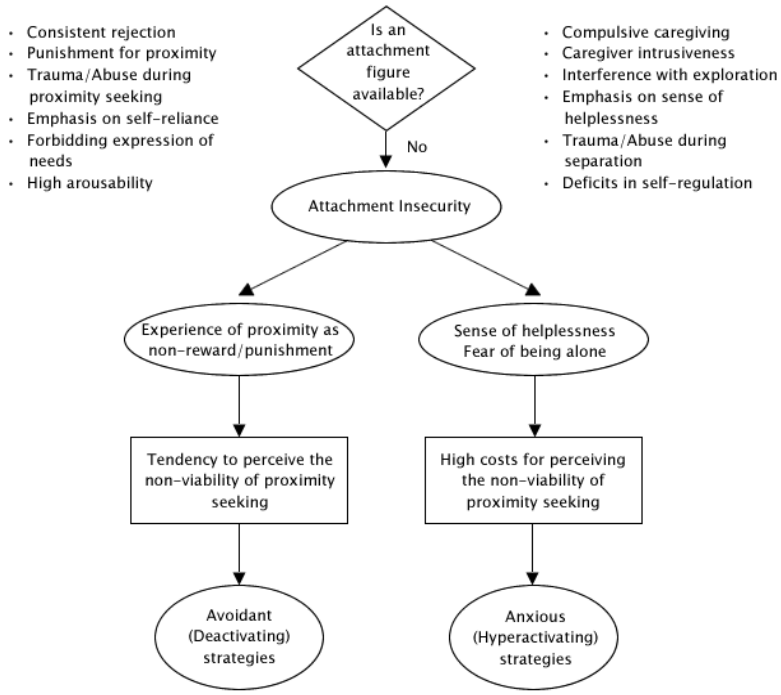

Figure 6. The Formation of Secondary Attachment Strategies. Adapted from Mikulincer et al., (2003). Deactivating strategies refer to avoidant attachment characteristics; hyperactivating strategies refer to anxious attachment strategies.

As shown in Figure 6, Mikulincer et al. suggest twelve situational or personal factors that they believe to be influential when an individual decides whether to use anxious or avoidant attachment strategies. This particular framework has not been empirically tested but studies exist that provide evidence linking these factors to attachment avoidance and anxiety (e.g. Mikulincer, 1995; Mikulincer & Orbach, 1995; Mikulincer & Florian, 1998; Shaver & Clark, 1994; Shaver & Hazan, 1993). These factors are based on the theoretical principles of attachment theory and Mikulincer et al. (2003) explain how they lead either to the experience of proximity as a non-reward or punishment, or a sense of helplessness and a fear of being alone. Proximity experienced as a non-reward or as a punishment is hypothesised to lead to the assumption that

proximity-seeking is not feasible in regulating affect. Proximity-seeking is considered not feasible because the individual learns that seeking (and gaining) proximity normally results in negative consequences that are more distressing than dealing with problems alone. This latter reasoning promotes the use of avoidant attachment strategies and compulsive self-reliance (after Bowlby, 1982/1969).

Conversely, experiencing a sense of helplessness or a fear of being alone leads to an increased probability that an individual will intensify proximity-seeking. In this case, proximity-seeking is considered to be essential to emotional survival, because the fear of being alone has been highlighted, and therefore the panic of abandonment is intensified. This reasoning would result in the use of anxious attachment strategies. Mikulincer and Florian (1998) and Shaver and Hazan (1993) review studies that lend support to the expanded framework.

The framework provided by Mikulincer et al. (2003) provides valuable insights into the states of mind and situations that determine what type of attachment strategies are used in close relationships.

Consequences of Insecure Attachment Styles

Adult insecure attachment styles have been associated with many psychological problems. Anxious attachment is linked to difficulties with autonomous behaviour, avoidant attachment is linked to difficulties with intimacy and closeness, and fearful-avoidance is often associated with individuals in clinical and abused samples. Individuals in these latter groups tend to experience an unpredictable combination of both anxious and avoidant strategies (Brennan & Shaver, 1998; Mikulincer & Shaver, 2003; Shaver & Clarke, 1994).

Anxious (Preoccupied) Attachment

The most frequently observed correlates of individuals exhibiting anxious (preoccupied) attachment styles are: a fear of abandonment; high levels of self-disclosure and romantic involvement; high dependency; intense emotional expression and low levels of self-control (Bartholomew, 1990; Bartholomew & Horowitz, 1991); exaggerated proximity-seeking, dysfunctional coping, and extreme physical and emotional distress at a loss (Davis, Shaver, & Vernon, 2003); intimate partner violence (Babcock et al., 2000; Bartholomew et al., 2001; Holtzworth-Munroe et al., 1997); aggression, jealousy, possessiveness, and desire for control motivated by abandonment fears (Mayseless, 1991); low self-esteem (Collins & Read, 1990); substance abuse (Caspers, Cadoret, Langbehn, Yucuis, & Troutman, 2005); lack of altruism and compassion (Mikulincer et al., 2005); 'manic love' (Levy & Davis, 1998); rumination and worrying (Mikulincer & Florian, 1998); proneness to shame (Lopez et al., 1997); heightened access to emotional memories, (Mikulincer & Orbach, 1995); intense anger experience and negative affect, anger proneness, higher displaced aggression compared with secure and avoidant individuals, and hostile attribution (Mikulincer, 1998); subjective measures of stress (Maunder, Lancee, Nolan, Hunter, & Tannenbaum , 2006); and belligerence (combativeness) in controlling the behaviour of an intimate partner (Babcock et al., 2000). Research has also found that romantic attachment, anger, and psychological and physical violence in couples were inter-related (Lafontaine & Lussier, 2005). In the Lafontaine and Lussier study, physical violence referred to a physical assault to a romantic partner, while psychological violence referred to a non-physical act of aggression, like verbal or non-verbal aggression (e.g. stomping out of a room) to a romantic partner (see Straus et al., 1996). Lafontaine and Lussier found that attachment anxiety was related to anger and psychological (non-

physical aggression e.g. verbal aggression) and physical violence (defined as physical assault) in females but that it was attachment avoidance that was directly related to anger and psychological violence in males. Lafontaine and Lussier also found that dysfunctional anger, in accordance with state and trait anger theory (Spielberger, 1988), was a significant mediator between attachment anxiety and non physical aggression in males, and both non-physical aggression and physical assault in females.

Avoidant (Dismissing) Attachment

Avoidant (dismissing) attachment has been associated with passive-aggression and hostility based on a fear of intimacy (Mayseless, 1991); defensiveness, high levels of control and distancing (Bartholomew & Horowitz, 1991; Babcock et al., 2000); restricted emotional expression, constrained self-disclosure, and compulsive self-reliance (Bartholomew & Horowitz; Davis et al., 2003); limited access to emotional memories and defensive exclusion (Fraley et al., 2000; Mikulincer & Orbach, 1995); restricted compassion and altruistic helping (Mikulincer, Shaver, Gillath, & Nitzberg, 2005); and an increased risk of substance abuse (Caspers, et al., 2005). Further, avoidant individuals have been found to experience dissociated anger, reporting high levels of anger control but also high levels of hostility and showing physiological arousal to anger-eliciting episodes as measured by heart rate changes (Mikulincer, 1998). Anger experienced by avoidantly-attached individuals differed from anxiously attached individuals. Anxious attachment was found to be related to lower levels of anger control and high arousal (but with no dissociation). Further recent research has linked avoidant attachment to "suppressed anger" and anxious attachment to "dysfunctional anger", or the frustrated and externalised anger of despair (Mikulincer & Shaver, 2005, p.152). Avoidance has also been linked to rage (Gormley, 2005), an intense anger affective emotion that is frequently associated with clinically insecure

individuals (e.g. Dutton, 1999). Mikulincer's (1998) studies may suggest that sudden outbursts of intensified anger may result from an avoidant individual's unmanageable cognitive load and excessive defensiveness. As noted previously, Lafontaine and Lussier (2005) found that attachment avoidance was directly related to anger and psychological violence in men, but that it was attachment anxiety that was related to female violence in couple relationships. Further research has shown that avoidant attachment (or avoidant characteristics within fearful avoidance, as noted in the next section) appears to be generally more associated with violence that is not specifically sexual than does anxious attachment (Butler et al., 2007; Levinson & Fonagy, 2004; Ross & Pfäfflin, 2004; Wampler & Downs, 2009; Van Ijzendoorn et al., 1997).

Supportive evidence for physiological arousal in avoidant individuals has also been found in a set of studies by Diamond, Hicks, and Otter-Henderson (2006). Avoidant individuals were found to exhibit both heightened and escalating sympathetic nervous system reactivity whilst concurrently not reporting corresponding levels of self-reported affect – so they were not aware of being aroused. Diamond et al. stated that avoidant individuals experience 'repressive coping' which may have detrimental long term health effects. They noted that this effect was more pronounced for women than for men. This study was not specifically concerned with anger but was concerned with inducing psychological stressors. However, it seems feasible to extrapolate that this process may well occur with anger.

Fraley and Brumbaugh (2007) examined defensive exclusion and avoidant attachment. They found that individuals with an avoidant attachment were more likely to exclude information from working memory at the encoding stage as a defensive reaction. According to Bowlby's prototypical thesis (1982/1969), anxious attachment is seen to be the first response when attachment related arousal is not regulated. All these

studies exploring exclusion and avoidant attachment indicate that avoidant attachment may be secondary to anxious attachment. Secure attachment can therefore be described as the adaptive response, anxious attachment can be described as the prototypical secondary response, and avoidant attachment (or fearful-avoidance) can be described as the final response because it is the closest temporal response to maladaptive attachment system deactivation, despair, and detachment.

Fearful-avoidant Attachment

Fearful-avoidant attachment is the third insecure adult attachment style (Bartholomew, 1990). For simplicity, the fearful-avoidant attachment style will be referred to as fearful attachment in the remainder of this thesis. Fearful attachment is considered to be more complex than other attachment styles because, based on the models of self and other, this style is characterised by both anxious and avoidant characteristics (shown in approach-avoidance behaviour and fear at intimacy), and a negative model of both the self and the other (see Figure 3). An individual's presentation of these characteristics is theoretically difficult to predict, but attempts have been made to explain the process of fearful attachment (Mikulincer & Shaver, 2003).

Fearful attachment has been consistently associated with more severely-disordered individuals (e.g. Brennan & Shaver, 1998; Shaver & Clarke, 1994). For example, in an assessment of attachment styles and thirteen personality disorders by Brennan and Shaver, fearful attachment was found to be the most prevalent attachment style in nine out of thirteen assessed personality disorders or behaviours (schizotypal, paranoid, avoidant, passive-aggressive, self-defeating, narcissistic, borderline, antisocial, and sadistic (from the DSM-IIIR) personality disorders compared with the other three attachment styles. Another study by Diehl, Elnick, Bourbeau, and

Labouvie-Vief (1998) cited eight personality characteristics that (as well as preoccupied attachment) were particularly associated with fearful insecurity. These characteristics were social avoidance**;** lack of leadership ability; lack of social presence and confidence; low self-acceptance; lower empathy; lower communality (fewer socialisation skills, immaturity, and lack of responsibility); low capacity for status (less ability to achieve status socially and professionally); and immature defence (that is the propensity to use defences such as projection, passive aggression, acting out, denial, isolation, displacement, and regression (for an elaboration on defence styles see Andrews, Pollock, & Stewart, 1989).

In terms of more extreme behaviours, fearful attachment has been frequently linked to increased aggressive behaviour, hostility, intimate partner violence, child sex abuse (Dutton et al., 1994; Dutton, Starzomski, & Ryan, 1996; Hudson & Ward, 1997; Jamieson & Marshall, 2000) and dissociative behaviour (Anderson & Alexander, 1996). Fearful attachment has also been associated with shame, trait anxiety, and an inclination to see anger in other people's faces (called an *anger decoding bias*) when compared with both anxious and avoidant people of the dismissing subtype (Magai, Hunziker, Mesias, & Culver, 2000), although Lopez et al. (1997) found that both fearful and avoidant individuals were equally prone to shame. Greater problems with emotional adjustment (Feeney, 1999), especially a lack of self-esteem (Bartholomew, 1990), and increased reporting of medically inexplicable symptoms of ill-health (Ciechanowski, Katon, Russo, & Dwight-Johnson, 2002), have also been found in fearfully attached individuals. It should be noted that later studies found that that anxiously attached (preoccupied) individuals have reported more of these symptoms of ill-health than have fearfully attached individuals (Ciechanowski, Walker, Katon, & Russo 2002; Kidd & Sheffield, 2005). A later study, however, found that *alexithymia* in fearful individuals,

a tendency to be externally orientated, to have a deficit in identifying and describing personal emotions - but not in experiencing them - and to be susceptible to concrete thinking, was the differentiating factor between fearful and preoccupied in increased symptom reporting (Wearden, Lamberton, Crook, & Walsh, 2005). In other words, fearful individuals seem more likely than other individuals to report medically inexplicable symptoms of physical health when the causes of the symptoms may be due entirely to emotional health. Furthermore, fearful individuals report more severe family experiences and, of all the groups, are the most dissatisfied in their experience with their family in childhood (e.g. Bartholomew, 1990; Bartholomew & Horowitz, 1991; Magai et al., 2000).

Although research frequently indicates a higher prevalence of insecure attachment styles compared with secure styles in forensic and clinical patients, some recent research has specified fearful attachment as the most prevalent insecure style in criminal populations (e.g., Timmerman & Emmelkamp, 2006). However, this distinction is not a consistent finding and may have been affected by differences in the measurement of attachment styles. This distinction might also depend on the type of criminal population assessed (e.g., Baker & Beech, 2004), although it has generally been found that fearful patients are the most challenging clinically when attempts are made to form a therapeutic alliance. The challenges have been reported to be the result of the patient's augmented augmented incapacity to trust (Eames & Roth, 2000), of a sense of social avoidance and of 'unworthiness' (Bartholomew & Horowitz, 1991), and due to more closed and 'cognitively inflexible' personality traits of fearfully attached patients when compared with individuals with other attachment styles (Mikulincer, 1997).

CHAPTER FOUR

ATTACHMENT, ANGER, AND AGGRESSION: A METHODOLOGICAL REVIEW

The review of the literature in Chapters 1-3 described the core theoretical bases of aggression, anger, and attachment. In order to measure and evaluate these three constructs, researchers use particular assessments and analyses. The aim of this chapter is to describe the main measures used in research to assess attachment, anger and aggression, and to highlight the strengths and weaknesses of different approaches.

Attachment

There are two main methodological approaches to measuring attachment. The first approach measures attachment by self-report questionnaires or vignettes; the second approach measures attachment by interview or observation (see Table 3 for a list of attachment measures). Both approaches have similar conceptualisations of attachment and the measures follow the general underlying conceptual approach originally presented by Bowlby (1982/1969; 1973; 1980). However, some of the different assessments have different items and labels which make an appreciation of the specificity and depth of the similarities confusing when studies using different measures are compared. Tests of conceptual convergence found that there are reasonably good correlations when different questionnaires are compared (Simpson & Rholes, 2002).

There are also some variations in the way that attachment relationships are assessed (Allen, Stein, Fonagy, Fultz, & Target, 2005; Feeney, Noller, & Hanrahan, 1994; Fraley et al., 2006; West, Sheldon, & Reiffer, 1987; West & Sheldon-Keller, 1992). Most attachment measures focus on mother or partner attachment, but some attachment measures include peers and the father figure as well (e.g. Armsden & Greenberg, 1987; Fraley et al., 2006; Sperling & Berman, 1994).

Table 3.

Key Measures of Attachment and their Sub-Factors.

Measure	Key Reference	Measurement Style	Sub Factors	Relationships Measured
Adult Attachment Questionnaire	Hazan & Shaver (1987)	3 vignettes (6-point Likert scale)	Secure, Anxious, Avoidant	Romantic
Simpson Adult Attachment Scale – Revised	Simpson, Rholes, & Phillips, (1996)	Questionnaire: 17 items (7 point Likert Scale)	Avoidance, anxious/ambivalence	Romantic
Collins' Adult Attachment Scale-Revised	Collins & Read, (1990)	Questionnaire: 18 items (5 point Likert Scale)	Close, Depend, Anxiety	Romantic
Relationship Questionnaire	Bartholomew & Horowitz (1991)	4 vignettes (7 point scale)	Secure, fearful, preoccupied, dismissing	Romantic
Relationship Scales Questionnaire (RSQ)	Griffin & Bartholomew (1994)	Questionnaire: 30 items (5 point Likert scale)	Secure, fearful, preoccupied, dismissing	Romantic
Attachment Styles Questionnaire	Feeney et al., (1994)	Questionnaire: 40 items (6 point Likert scale)	Confidence, discomfort with closeness, relationships as secondary, need for approval, preoccupation with relationships	Romantic

Table 3 (continued).

Measure	Key Reference	Measurement Style	Sub Factors	Relationships Measured
Reciprocal Attachment Questionnaire	West, Sheldon, & Reiffer, (1987); West & Sheldon-Keller (1992)	Questionnaire: 35 items (5 point Likert scale)	Separation protest, proximity seeking, feared loss, availability, use of attachment figure	Parent, Peer, or Partner
Inventory of Parent and Peer Attachment (IPPA)	Armsden & Greenberg (1987)	75 item Questionnaire with a five point likert scale response format.	Mutual trust, quality of communication, and extent of anger and alienation	Mother, Father, (non romantic) Friends.
Attachment Styles Inventory	Sperling & Berman (1989)	Questionnaire: 4 vignettes rated 4 times on 9 point Likert scale	Secure, avoidant, dependent, hostile, resistant/ambivalent	Mother, Father, Friends, and Sexual Relationships
Experiences in Close Relationships Scale (and revised version) (ECR-R)	Brennan et al. (1998); Fraley et al. (2000 - Revised version)	36 items (7 points)	Avoidance (discomfort with closeness and discomfort with depending on others), Anxiety (fear of rejection or abandonment)	Romantic

Table 3 (continued).

Measure	Key Reference	Measurement Style	Sub Factors	Relationships Measured
Relationships Structures Scale	Fraley, n.d., Fraley et al. (2006)	40 item Questionnaire on a 7 point Likert scale	Avoidance (discomfort with closeness and discomfort with depending on others), Anxiety (fear of rejection or abandonment)	Mother, Father, Partner, Best Friend
Attachment/non-attachment Scale (in preparation)	Allen, Stein, Fonagy, Fultz, & Target (2005)	195 items (Response format N/A)	Secure, Dismissing, Preoccupied, Positive non-attachment, Negative non-attachment	Not specified
Adult Attachment Interview	George et al., (1985); Main et al. (1985)	45-100 minute Clinical Interview	Secure, Avoidant, Resistant-Ambivalent, Disorganised/Disorientated	Mother
Strange Situation	Ainsworth et al. (1978); Main & Solomon, (1991)	Clinical Laboratory Observation	Secure autonomous, Dismissing, Preoccupied, Disorganised/Disorientated	Mother

Most studies examining attachment either measure attachment categorically as with Secure, Anxious, Avoidant, Fearful (Bartholomew & Horowitz 1991; Mikulincer, 1998), or as continuous variables measuring dimensions of attachment anxiety and avoidance (Fraley, n.d; Fraley et al., 2000; Mikulincer & Shaver, 2003). Most assessments of attachment are designed as Likert-style questionnaires (Brennan et al., 1998; Fraley et al.; Griffin & Bartholomew, 1994; Simpson, 1990; Sperling & Berman, 1989; West et al.,1987; West & Sheldon-Keller, 1992), although a few assessments use vignettes to measure attachment (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987; Sperling & Berman) and others include interviews, prototypes, and self-reports (e.g. Attachment Prototype Rating, Strauss & Lobo-Drost, 2001). Most assessments measure attachment using the concepts (and labels) of secure, anxious (preoccupied), avoidant (dismissing), and fearful avoidant attachment (disorganised), while others assess attachment using different descriptors of attachment sub-categories. Differences in descriptors occur as a result of the factor analyses used to derive components from the data. For example, Feeney et al. (1994), West et al. (1987), and West and Sheldon-Keller (1992) describe attachment differently from the classical secure, anxious, avoidant, and fearful-avoidant categories (see Table 3). Allen et al. (2005), who are researchers usually associated with qualitative measures using interview techniques such as the Adult Attachment Interview (George et al., 1985; Main et al., 1985), have also measured attachment using quantitative categories rather than categories derived from interviews. The factors described by Allen et al. (2005) were developed from a content analysis of data derived from a review of previous literature. A questionnaire was developed from this content analysis and contains 195 items relating to attachment and non-attachment (see Table 3).

Most frequently, questionnaire methods are used to assess the relationship between an attachment figure and the mother or between an attachment figure and the romantic partner. However, some questionnaires do include peer assessments of attachment. A commonly used questionnaire that assesses parent and peer attachment for adolescents and young people is the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987). The IPPA measures attachment to parents and friends and also assesses attachment using slightly different definitions of concepts of attachment from the classical categories. The difference in definitions means that the inventory fits less precisely with the classical attachment categories and descriptions. The inventory assesses each individual on trust, communication, anger and alienation.

Although attachment has been measured using a wealth of methods (see Table 3), the Experiences in Close Relationships Scale, or variations of it (like the Relationships Structures Scale used in Fraley et al., 2006) is often the questionnaire of choice (Fraley et al., 2000; Fraley, n.d; Mikulincer & Shaver, 2003). The ECR was developed in 1998 (Brennan et al., 1998) and was revised in 2000 (ECR-R; Fraley et al., 2000). The ECR and the ECR-R are the most widely used scales to assess attachment (Mikulincer & Shaver, 2007). As highlighted by Fraley and Waller (1998), the scales are considered to be reliable in their depth of measurement because they measure attachment using continuous measures rather than placing participants' scores into categories. Indeed, research has indicated that significant precision of measurement is lost when categorical measures are used to assess attachment instead of continuous questionnaires (Fraley & Waller). Based on their extensive review of attachment literature, Fraley and Waller strongly advocate assessing attachment using continuous scores because of the potential loss of specificity when categorical measures are used.

Fraley et al. (2006) created a shortened version of the ECR-R scale by Brennan et al. (1998) in order to assess attachment styles more generally. This shortened version of the ECR-R assesses attachment to the mother, father, partner, and best friend as separate attachments. The shortened scale, named the Relationships Structures Scale (RSS), consists of 10 items repeated four times for each relationship. Fraley et al. devised a method of creating a generalised attachment measure by creating two mean attachment scores, one for attachment anxiety and another for attachment avoidance (Fraley et al., 2006). The ECR-R is therefore able to assess attachment both as a generalised trait-like construct and as a set of relationship-specific attachments.

The second assessment method uses observational and interview methods. These methods are labour intensive and are almost always used by researchers working directly in a clinical or forensic context. The main assessments of this type are the Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978; Main & Solomon, 1991) and the Adult Attachment Interview (AAI: George et al., 1985; Main et al., 1985). The Strange Situation is a classic measure of attachment style to the mother using observational techniques (Ainsworth et al., 1978; Main & Solomon, 1991) and assesses attachment in young children to their mother. The AAI is used to assess children's attachment styles based on their caregiver's attachment style. It is an interview that consists of a schedule of open-ended questions relating to retrospective accounts of parent-child interactions. The AAI interview provides an assessment of the mother's attachment style but excludes questions on adult-adult attachments such as attachment to the partner or to a friend. Individuals are categorised through the AAI as secure, dismissing (avoidant), preoccupied (anxious), or disorganised/unresolved (fearful-avoidant). Although the Strange Situation method (for children) and the AAI (for adults) provide a highly detailed amount of qualitative information (Fonagy, personal

communication), these two methods require extensive and costly professional training and take a long time to administer and score.

Interview-based measures of attachment like the AAI are very expensive to administer because of training costs and time to code the data per person (e.g. Crittenden, 1998; Main & Goldwyn, 1984). In studies using quantitative methods of assessment, the most frequent analyses used are either tests of differences between means (e.g. (M)ANOVAS, e.g. Mikulincer, 1998; Stackert & Bursik, 2003), though most studies use correlational techniques including regression (e.g. Diamond & Hicks, 2005; Noom, Decovic, & Meeus, 1999; Simons, Paternite, & Shore, 2001). Measures assessing attachment have also been analysed using regression and mediation analysis in the context of anger and violence (Lafontaine & Lussier, 2005), and in the context of aggression and self-esteem (Gomez & McLaren, 2007).

Anger

Several assessments of anger feature in the literature, and Table 4 shows the various ways in which anger has been measured by researchers. One is the Adolescent Anger Rating Scale (AARS: Burney, 2001) which involves a group or individual assessment of participant anger experiences that may be co-morbid with Conduct Disorder, Attention Deficit Hyperactivity Disorder, or Oppositional Defiant Disorder. There is also the Children's Inventory of Anger (ChIA: Nelson & Finch, 2000), which is a self-report measure of the intensity of a child's anger and provoking factors (ages 6-16 years old), the Children's Anger Response Checklist (Feindler, Adler, Brooks, & Bhumitra, 1993), and the Multidimensional Anger Inventory (Siegal, 1986). Anger has also been measured within measures of aggression (See Chapter 1 for definitions and clarification on the conceptual difference between anger and aggression). For example, the Aggression Questionnaires (Versions 1 and 2: Buss & Perry, 1992; Buss & Warren,

2000), both of which are discussed later in this chapter, each contain a subcomponent of anger. The problem with using this sub-component to assess anger is that the questionnaires are not designed exclusively to assess anger in depth and there are only seven items. Therefore, other measures that specifically focus on anger, like the NAS (Novaco, 1994; 2003), rather than aggression are likely to yield more depth and conceptual reliability in the data they provide.

Table 4.

Measures of Anger and their Sub-Factors.

Measure	Key Reference	Measurement Style	Sub Factors
Adolescent Anger Rating Scale	Burney (2001).	41 item Questionnaire on a 4-point Likert scale.	Total Anger, Instrumental Anger, Reactive Anger, and Anger Control.
Children's Inventory of Anger	Nelson & Finch (2000)	39 item Questionnaire on a 6-point Likert scale.	Frustration, Peer Relationships, Authority Relations, Physical Aggression
Children's Anger Response Checklist	Feindler, Adler, Brooks, & Bhumitra (1993)	10 hypothetical anger provoking situations	Affective, Behavioural, and Cognitive Anger
Multidimensional Anger Inventory	Siegel (1986)	38 item Questionnaire on a 5-point Likert scale	Anger arousal, anger eliciting situations, hostile outlook, anger-in, anger-out
Novaco Anger Scale (NAS) and Novaco Provocation Inventory (PI)	Novaco (1994; 2003)	NAS: 60 item Questionnaire on a 3 -point Likert Scale. PI: 25 item Questionnaire on a 4-point Likert scale	NAS: Cognition, Arousal, Behaviour (with extra component of Anger Regulation) PI: Disrespectful Treatment, Unfairness, Frustration, Annoying Traits of Others, Irritations
State Trait Anger Expression Inventory (Versions 1 and 2)	Spielberger, (1988; 1991; 1999).	44 item Questionnaire on a 4-point Likert scale	State Anger, Trait Anger (Angry Temperament, Angry Reaction), Anger Expression (Anger-in, Anger-out, Anger Control)

The two most frequently referenced assessments of adolescent to adult anger are the Spielberger (1991; 1999) State Trait Anger Expression Inventory (STAXI) and the Novaco Anger Scale and Provocation Inventory (NAS-PI, Novaco, 1994; 2003). Research has shown high levels of concurrent validity between the NAS and the STAXI (Novaco, 1994). The STAXI (Spielberger, 1988; 1999) measures anger in terms of anger disposition and assesses *how* anger is experienced (e.g. expressed outwards or suppressed). The STAXI assesses the experience and expression of anger in terms of state anger, trait anger (angry temperament without provocation and angry reaction with provocation), and anger expression (anger-in, or suppressed anger, anger expressed outwards, and anger control).

Chapter 3 described the foundations of Novaco's theory of anger. Rather than focusing on anger disposition, the NAS assesses anger as an emotion that comprises anger arousal, cognition, and behaviour. The NAS also assesses the individual's ability to regulate their anger. The PI is a second part of the overall Novaco assessment of anger (Novaco, 2003) and is an inventory assessing the ease with which an individual is provoked into a state of anger.

The design of the NAS fits precisely into the core anger theory presented by Novaco (1994; 3003) and discussed in Chapter 2. Consequently, the NAS is particularly useful in assessing anger as an emotional state because it is specifically aligned with Novaco's model and the assessment is clearly nested in the theory. Furthermore, the NAS is the only assessment of anger that focuses explicitly on anger intensity, the scope of experienced anger, and the generality of anger across different circumstances, rather than focusing on the nature of anger and its consequences.

Anger, as measured by the NAS (or NAS-PI) and the STAXI, is often assessed in clinical or forensic populations. The designs of studies assessing anger are often

based on pre-post treatment designs or on between-or within-group designs using *F* tests like t-tests, ANOVA, or ANCOVA (e.g. Chemtob, Novaco, Hamada, & Gross, 1997; Suter, Byrne, Byrne, Howells, & Day, 2002). Both the STAXI and the NAS have been found to be reliable and valid in both forensic and non-forensic populations (Baker, Van Hasselt, & Sellers, 2008; Buss & Warren, 2000; Novaco, 2003; Swaffer & Epps, 1999).

Aggression

Several measures of aggression feature in the literature (see Table 5). The Aggression Inventory measures physical aggression, verbal aggression, impulsiveness, and avoidance of aggression (Gladue, 1991). The aggression factor of the Youth Self Report into problem behaviour (Achenbach, 1991) assesses generalised types of aggression. However, the most common and validated measure of aggression is the Aggression Questionnaire (AQ; Buss & Perry, 1992; AQ-Version 2: Buss & Warren, 2000). This questionnaire was developed from the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957). The AQ assesses aggression in terms of anger, hostility, physical, and verbal aggression. Version 2 of the AQ adds a fifth component, indirect aggression, which measures actions that express aggression that "avoids direct confrontation" (Buss & Warrren, p.15). Thus, the AQ-2 provides an assessment of several different manifestations of aggression and its close relative, anger, and assesses anger, covert (hostile and indirect) aggression, and overt (physical and verbal) styles of aggression.

Table 5.

Measures of Aggression and their Sub-Factors.

Measure	Key Reference	Measurement Style	Sub Factors	Additional Information
Aggression factor of the Youth Self-Report	Achenbach, 1991	19 items (for Aggression factor) on a 3 point Likert Scale	Common and generalised aggression	Aggression factor of the Youth Self-Report
Buss Durkee Hostility Inventory	Buss & Durkee, 1957	Questionnaire: 75 true/false items – dichotomous Reponses	Assault, Indirect hostility, Irritability, Negativism, Resentment, Suspicion, Verbal Hostility, Guilt	--
Aggression Questionnaire Version 1	Buss & Perry, 1992	Questionnaire: 29 items on a 5 point Likert scale	Physical Aggression, Verbal Aggression, Hostility, Anger	Adapted from the Buss- Durkee Hostility Inventory
Aggression Questionnaire Version 2	Buss & Warren, 2000	Questionnaire: 34 items on a 5 point Likert scale	Physical Aggression, Verbal Aggression, Hostility, Anger, and Indirect Aggression	Adapted from the Buss & Perry (1992) Aggression Questionnaire. Extra 6 items component added – Indirect Aggression.

The first and second aggression questionnaires (Buss & Perry, 1992; Buss & Warren, 2000) have been used with both forensic and non-forensic samples. For example, the AQ (versions 1 and 2) has been used in the assessment of aggression in adult criminal offenders (e.g. Archer & Haigh, 1997; Buss & Warren, 2000; Wang & Diamond, 1999; Williams, Boyd, Cascardi, & Poythress, 1996) and in research into the relationship between aggression and personality (e.g. Russell & Arms, 1995). A recent study has explored the prevalence of physical aggression in males and females using the AQ version 1 in a university student sample (Tremblay, Graham, & Wells, 2008), but there are no studies exploring covert and overt aggression in young people in the context of generalised attachment and anger. Aggression has been examined in the context of attachment (Gomez & McLaren, 2007; Noom et al., 1999), but no studies to date measure aggression with generalised insecure attachment using the Buss and Warren (2000) AQ.

The AQ-Version 2 is a reliable measure of aggression (see Buss & Warren 2000). The reliability of the AQ-2 has been extensively researched (Buss & Warren, 2000). Studies using the aggression questionnaires have used a number of different designs and analyses (see Buss & Warren for a list of key studies using the AQ). Recent studies present analyses ranging from *F* tests of difference in physical aggression and alcohol consumption scores in male and female university students (Tremblay et al., 2008) to correlational methods assessing personality and aggressive and non-aggressive anti-social behaviour (using the AQ- version 1: Burt & Donnellan, 2008).

CHAPTER FIVE

RESEARCH QUESTIONS AND METHODOLOGY

Introduction to the Research Questions

The previous four chapters described and reviewed the literature on aggression and violence, anger, and attachment. This chapter presents seven research questions that emerge in light of this available literature. This chapter also presents the general methodologies used in the studies in this thesis.

Although a body of research has examined correlates of relationship-specific attachment avoidance and anxiety in the context of aggression, violence, and anger (e.g. Lafontaine & Lussier, 2005; Levinson & Fonagy, 2004; see Chapters One, Two, and Three), none of these studies has considered the relationship between the theories presented by Anderson and Bushman (2002) and Buss and Warren (2000) on aggression, by Novaco (1994) on anger, and by Mikulincer and Shaver (2003), on attachment. These three frameworks are all cognitive behavioural in approach and therefore might be considered to be theoretically compatible. An argument for considering these theories together is supported by the multisystemic approach to cognitive systems, an approach advocated by Robins and Novaco (1999) that highlights the utility of integrating different systems that can influence human behaviour.

Most literature on attachment theory focuses primarily on attachment to a romantic partner or to the mother figure. As a result, there is a lack of research on how an individual may perceive relationships in general and how this generalised approach, rather than a relationship-specific approach, might relate to anger, aggression, and violence. A generalised approach to attachment is useful because it allows researchers to examine how relationships with significant others contribute to the overall perception

of an individual's social networks rather than focusing only on one particular attachment relationship (Mikulincer & Shaver, 2003). A generalised approach to attachment has theoretical and practical merit first because it extends attachment theory beyond the relationship-specific or multiple attachment framework (Fraley et al., 2006) and second, because this approach might enable practitioners to make predictions about individuals in the context of engagement in treatment. The engagement of clients in treatment is an important aspect of treatment effectiveness, as shown by an expanding literature on treatment readiness (e.g. Howells & Day, 2006; Ward, Day, Howells, & Birgden, 2004).

As noted in Chapter Three, all three styles of insecure attachment: anxiety (Babcock et al., 2000; Lafontiane & Lussier, 2005; Mayseless, 1991; Mikulincer, 1998), avoidance (Dutton, 1999; Lafontaine & Lussier; Mayseless), and fearful-avoidance, (Dutton et al., 1994; Hudson & Ward, 1997), have been linked to aggression or violence. Bowlby (1982/1969) and Mikulincer and Shaver (2003) note that that anxiety is the prototypical evolutionary response by the attachment system to a cue that is perceived to be a threat. It is from this basic instinct of anxiety that the attachment system adapts to situations, as highlighted in the integrative model of the attachment system (Mikulincer & Shaver, 2003, see Figure 4, Chapter 3). As noted in Chapter Three, Fraley et al. (2006) found that participants who scored highly on generalised attachment anxiety, not generalised attachment avoidance, recognised the onset and offset of angry faces faster than those participants who did not score highly on this measure. This study, although not focusing on aggression or violence, may suggest that participants high in generalised attachment anxiety would be more likely than those participants low in generalised attachment anxiety to become aggressive faster due to a hostile attribution bias (Dodge & Crick 1990). As anxiety is considered to be the

prototypical response to perceived separation from an attachment figure (Bowlby, 1982/1969), it is also possible that secondary attachment strategies, whether anxious or avoidant in an observable presentation, may have anxious attachment traits as underlying motivations for the behavioural strategies that are actually used and seen in practice.

No previous research has examined how generalised attachment and anger may relate to aggression, namely, overt (physical and verbal) aggression or covert (hostile and indirect) aggression. It is useful to examine overt and covert aggression separately because overt aggression relates to aggression that is externalised while covert aggression is aggression that is internalised or concealed in its operation. If the difference between these types of aggression is noted, specific implications on risk and treatment might be made dependent upon different presentations of aggression.

After Bowlby's (1973) thesis that anger is a key response to attachment system activation, Lafontaine and Lussier (2005) and Mikulincer (1998) highlighted the presence of dysfunctional anger in attachment insecurity. Lafontaine and Lussier found that anger was as significant mediator between attachment insecurity and either psychological (non-physical aggression e.g. verbal aggression) or physical violence (physical assault) in a romantic dyad. There are two reasons why it would be practical to examine anger as a mediator between attachment style and aggression. First, the involvement of anger in attachment theory and aggression is supported by strong theoretical foundations (Bowlby, 1973). Second, if evidence is provided that anger is a significant mediator between generalised attachment style and aggression, practical implications can be made about the involvement of attachment style in experiences of anger in management and treatment plans.

Most of the research discussed in the literature review is quantitative in methodology or uses large sample sizes. Such research, including studies that examine the role of attachment in aggression and violence, has laid down empirical foundations that are statistically reliable and that are generally projectable to a wider population. A disadvantage of using statistics and large samples is that it is not always possible to examine individual cases with a greater depth of information. Although it is important to integrate findings from large quantitative studies, it is also important to integrate findings collected from studies that focus on particular groups of individuals, for example, individuals who self-report aggression (e.g. as defined by Anderson & Bushman, 2002, and Buss & Warren, 2000). Although Gomez and McLaren (2007) examined maternal and paternal attachment styles in terms of general aggression, they did not examine multiple attachments in the context of Buss and Warren's sub-types of aggression (hostile, indirect, physical, and verbal aggression) and this study did not examine specific individuals who scored highly in aggression. Research exploring attachment styles in individuals who self-report high levels of aggression have clear practical implications for practitioners.

As well as examining attachment styles in individuals who score highly on aggression, it is also important to highlight differences relating to gender. Studies do not often specifically focus on gender differences in attachment style and aggression or problem behaviour (e.g. Gomez & McLaren, 2007; Noom et al., 1999). However, remembering Bowlby's (1969) emphasis on the evolutionary importance of attachment for emotional and physical survival in the early years, it seems reasonable to suppose that negative outcomes of insecure attachment, like dysfunctional anger and aggression, would occur in both genders, particularly in the early years. However, research has found that pre-school age males who were classified as insecurely-attached displayed

aggressive and angry behaviour, whereas pre-school females who were classified as insecurely-attached did not display such behaviours (Turner, 1991). Contrary to Turner's findings, other studies have found that female aggression has a stronger relational component than male aggression: that is, females are more motivated than males to be aggressive in the theoretical context of attachment (Arias, Samios, & O'Leary, 1987; Baumeister & Sommer, 1997; Beckner, 2005; Campbell & Muncer, 1987; Magdol, Moffit, Caspi, Newman, Fagan, & Silva, 1997). Lafontaine and Lussier's (2005) study also explored how males and females differed in the link between attachment, anger, and both physical assault (which they called physical violence) and verbal and non-physical aggression (which they called psychological violence). They found that male attachment avoidance was directly related to verbal and non-physical aggression while attachment anxiety in women predicted their use of verbal and non-physical aggression and physical assaults on their partners. Lafontaine and Lussier (2005) also found that male attachment avoidance led to dysfunctional anger within the dyad, which in turn led to verbal and non-physical aggression. In women, however, it was attachment anxiety that led to dysfunctional anger within the dyad, which in turn resulted in both verbal and non-physical aggression and physical assaults on their partners.

Therefore, current research on gender differences, as noted above, which assesses the relationship between attachment and aggression and attachment and anger, leads to differing conclusions. Some research has found that insecure attachment in males is linked to aggressive behaviour (Turner, 1991), while other research has indicated that insecure attachment and aggression is more commonly linked in females than in males (e.g. Arias et al., 1987; Beckner, 2005). Lafontaine and Lussier (2005) found that insecure attachment is present in both genders but is linked to aggression and

physical assault in different ways. The findings discussed above show more diversity in findings relating to gender differences in aggression than in gender differences in anger. One reason why the findings in research on aggression and violence might seem to lead to differing conclusions may be because terms like 'aggression' and 'violence' are used interchangeably and therefore theoretical comparisons between study findings are difficult.

Research conducted with violent offenders has indicated that insecure attachment is prevalent amongst these individuals. Much of the research examining insecure attachment and violent offending has focused on sexual violence (e.g. Hudson & Ward, 1997) rather than on non-sexual violence (Levinson & Fonagy, 2004; Ross and Pfäfflin, 2004). The research that has been conducted on non-sexually violent offenders has noted a slightly greater prevalence of attachment avoidance or attachment avoidance with anxiety rather than pure attachment anxiety (Levinson & Fonagy, 2004; Ross & Pfäfflin, 2004). A generalised attachment perspective has never been employed in research with violent offenders.

As argued in Chapters Two and Three, attachment theory offers an explanation of human emotional regulation and social interaction within significant close relationships, and anger is a small though significant part of this wide-ranging framework (Bowlby, 1973). Empirical studies to investigate anger and aggression using a generalised attachment paradigm have never been conducted. Mikulincer and Shaver (2003) suggested that there would be profit in taking a wider and more general approach to attachment perspectives and Fraley et al. (2006) pioneered their shortened assessment looking at generalised attachment (based on attachment to the mother, father, partner, and best friend) in the facial recognition of emotions (including anger). However, the

Fraley et al. approach to assessing generalised attachment has yet to be used in the related context of self-reported dysfunctional anger and aggression.

Research Questions

Seven research questions are presented in this thesis. Study One focuses on the first research question:

1. How does generalised attachment avoidance and anxiety (as described by Mikulincer & Shaver's model and by Fraley et al., 2006) relate to dysfunctional anger arousal, cognition, and behaviour (Novaco, 1994) and general aggression (as described by Buss & Warren, 2000, and Anderson & Bushman, 2002) in males and females?

Study Two focuses on the second and third research questions:

2. How does generalised attachment anxiety (Fraley et al., 2006; Mikulincer & Shaver, 2003) relate to dysfunctional anger arousal and cognition (Novaco, 1994) and overt aggression (Anderson & Bushman, 2002; Buss & Warren, 2000) in males and females?
3. To what extent does anger cognition and arousal (Novaco, 1994) mediate the relationship between generalised attachment anxiety and overt aggression (Buss & Warren, 2000)?

Study Three focuses on the fourth and fifth research questions:

4. How does generalised attachment anxiety (Fraley et al. 2006; Mikulincer & Shaver, 2003) relate to dysfunctional anger arousal and cognition (Novaco, 1994) and covert aggression (Anderson & Bushman, 2002; Buss & Warren, 2000) in males and females?

5. To what extent does anger cognition and arousal (Novaco, 1994) mediate the relationship between generalised attachment anxiety and covert aggression (Buss & Warren, 2000)?

Study Four focuses on the sixth research question:

6. How do relationship-specific patterns of attachment relate to self-reported overt and covert aggression?

Study Five focuses on the seventh research question.

7. How does both generalised and specific attachment avoidance and anxiety (Mikulincer & Shaver, 2003) relate to dysfunctional anger arousal, cognition, and behaviour (Novaco, 1994) and aggression (Anderson & Bushman, 2002; Buss & Warren, 2000) in young male offenders? How to these scores for young male offenders differ from male non-offenders?

Overall Research Methodology

In order to answer the seven research questions presented above, it was necessary to collect data from three samples: males, females, and young male violent offenders. These data were then collated into a large data set with data on generalised attachment anxiety and avoidance, relationship-specific attachment anxiety and avoidance, anger arousal, cognition, and behaviour, and physical, verbal, hostile, and indirect aggression. This section provides the overall methodology for the research. Methodological details that relate specifically to each study are presented in the individual study chapters. The statistical package used to analyse the data in this thesis was SPSS (SPSS Inc, 1999).

Participants

Studies One to Three

One hundred and nine males and 123 females were recruited through the School of Psychology Participant Panel (PP), the University of Leicester Medical School, or the Psychology Experimental Participation Requirement (EPR) System at the University of Leicester. The PP is part of a voluntary research participation scheme run by the University of Leicester's School of Psychology. The EPR System organises participation in psychological research as part of the School of Psychology's undergraduate course requirement. These two samples of participants were only allowed to take part if they reported that they had never been convicted of a violent offence. The mean age for the male sample was 20.29 (SD = 2.53). The mean age for the female sample was 19.07 (SD =0.98).

Study Four

Participants were selected from the male and female samples if they had very high scores on at least one of the four aggression components according to Buss and Warren's (2000) standardised norms. Very high scores were defined by Buss and Warren as a *T* score of 70 or more which is equal to or greater than two standard deviations from the standardised mean (*M*=50). There were 18 participants in the present study, seven males (mean age 19.86, *SD* = .064) and 11 females (mean age 19.18 *SD* = 0.72). All participants were current university students at Leicester University.

No males scored in the very high category for physical aggression (≥ *T* 70); therefore males who scored in the high category of physical aggression were selected instead. A high score was defined as a *T* score of 60-69, which ranges from between one and two standard deviations from the standardised mean. The groups were selected by gender and type of aggression and each group was considered independently in the context of attachment scores. As a result, the inclusion of high, rather than very high, physical aggression scores is only affected in terms of interpretation, not analysis.

Males. Of the total sample size, 8.5% (n=7 out of 82) of the aggression scores from the male sample reached at least one of the high (*T*60-69) or very high (*T* ≥ 70) aggression cut-off. Three participants scored highly for physical aggression. Two participants scored very highly for verbal aggression. For hostile aggression, four males scored very highly, and for indirect aggression two males scored very highly. One male scored highly or very highly on all four components of aggression, and one scored highly or very highly on both hostile and indirect aggression. The remaining participants only scored highly or very highly on one of the four components.

Females. Of the total sample size, 10.1% (n=11 out of 109) of the female sample reached at least one of the high aggression cut-offs. For physical aggression, four participants scored very highly, and for verbal aggression, four participants scored very highly. Four females scored very highly for hostile aggression, and for indirect aggression two scored very highly. As with the male sample, one participant scored on all four components of aggression, and one participant scored on both hostile and indirect aggression. The remaining participants scored very highly on only one of the four components.

Study Five

Forty-two young male violent offenders were recruited via two youth offending services in the Midlands. Ten participants' data were excluded either because of incomplete questionnaires or because the participant withdrew from the study. A further three males were excluded from the sample because their violent offences (common assault and public disorder) were considered to be less serious than the other participants' violent offences (according to the Youth Offender Case Disposal Gravity Factor System (1998). Of the 29 participants remaining, the mean age was 16.6 years (*SD* = 0.81). Four (13.8%) of the sample committed their index offence on an attachment figure (member of the family or a friend). The remaining 25 (86.2%) had reported that their offence was committed against a non-attachment figure.

Male offenders were selected from the youth offending service if they were serving either a community sentence or a community part of a custodial sentence for a serious violent offence in order to participate. These selection criteria were used because a conviction increases the likelihood that an offence has actually been committed. Serious violent offence is defined in this study by a score of 3 or 4 (scores range from 1-4) using the Youth Offender Case Disposal Gravity Factor System (1998).

A comparison group of male non-offenders was constructed (see Study Five and the design section in this chapter on how this group was constructed). This comparison group reported that they had never been convicted of any violent offence, including less serious offences such as common assault or public disorder.

Design

The administration of all three questionnaires was counterbalanced in an ABC/BCA/CAB format for each group of participants in each of the studies.

Further, more specific details for each Study are presented in the relevant proceeding Chapters.

Studies One to Three

Survey designs were used to assess the relationships between the attachment variables and the anger variables and the attachment variables and aggression variables.

Study Four

A survey design and a case study design were used in order to examine relationship-specific attachment scores in males and females who scored in the higher ranges of physical, verbal, hostile, and indirect aggression.

Study Five

A survey design and a case study design were used. Two groups, 29 male violent offenders (convicted) and 29 male non-violent non-offenders (self-reported) were formed. Twenty-nine males were selected from the sample of non-offending males (n=109 males) and this selection was achieved by SPSS-generated random sampling. It was not possible to match the two samples by age: when the youngest 29 non-offenders

were selected as a comparison group, a t-test showed that there was a significant age difference between the offending and non-offending sample (t = -.4.77, $p < .05$).

Materials

Studies One to Five

Three self-report questionnaires, a demographic questionnaire, and an informed consent statement were presented to all participants (see Appendix A). In Study Five, participants' data were collected by a youth offending team caseworker. All caseworkers were required to complete and sign an ethics form that stipulated that the data would not be used in the context of their case with the youth justice system.

Attachment dimensions. Attachment dimensions were measured using a version of the Experiences in Close Relationships-Revised (ECR-R; Fraley et al., 2000) that was adapted for this research and was based on the research by Fraley (n.d.) and Fraley et al. (2006). The ECR-R was adapted for this study by assessing attachment scores to the mother, father, partner, and best friend in order to derive generalised attachment scores as well as relationship-specific attachment scores (see data analysis section for information on internal consistency and test-retest reliability).

The original ECR-R (Fraley et al., 2000) is a 36-item scale that measures attachment style to a romantic partner on the dimensions of anxiety and avoidance. Eighteen items measure attachment-related anxiety (e.g., "*I'm afraid I will lose my partner's love*") and 18 items measure attachment-related avoidance ("*I prefer not to show my partner how I feel deep down*"). These items produce two scores, one for generalised anxiety and one for generalised avoidance. Each item is rated on a visual analogue Likert 7-point scale where 1=*strongly disagree* and 7=*strongly agree*. The

ECR-R has been used extensively in personality research (Mikulincer & Shaver, 2007). and has good reliability and validity (Fraley, n.d; see Appendix A).

Anger. Anger was measured using the Novaco Anger Scale (NAS; Novaco, 2003). The NAS comprises four sub-components of anger arousal, anger cognition, angry behaviour, and anger regulation. Anger regulation was not examined in this research. The NAS response format is on a visual analogue Likert scale of 1-3 where 1 = *never true*, 2 = *sometimes true*, and 3 = *always true*. The NAS includes an Inconsistent Responding Index (NAS-IRI). This index flags a selection of eight NAS item-pairs that should not be answered inconsistently if they are considered to be measuring anger reliably (Novaco, 2003).

As discussed in Chapter Two, Study One in this thesis uses the standard NAS score, which is the sum of the scores for anger arousal, cognition, and behaviour. Studies Two to Five use anger arousal and anger cognition. Due to copyright restrictions, example items from the NAS cannot be reproduced in writing.

The NAS can be used to assess individuals ranging in age from 9-84 years, and the questionnaire is written at fourth-grade reading level (age 9 years). Estimated completion time of this questionnaire is 25 minutes (Novaco, 2003).

The reliability and validity of the NAS is reported to be excellent in both forensic and hospitalised samples (see Novaco, 2003). This study uses the NAS in a non-forensic student sample. Internal consistency was found to be good for both forensic and non-forensic samples in the data reported by Novaco.

Aggression. Aggression was measured using the Buss and Warren (2000) Aggression Questionnaire-Version 2 (AQ-2) which is based on the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957) and the Aggression Questionnaire Version 1 (Buss & Perry, 1992). The AQ-2 is a 34-item questionnaire that measures five different

aspects of aggression as defined by Buss and Warren: these five aspects are: (i) verbal aggression (5 items); (ii) physical aggression (8 items); (iii) anger; (iv) hostility, (e.g. 8 items); (v) indirect aggression (6 items). The difference between Version 1 and Version 2 of the AQ is that Version 2 includes a five-item component on indirect aggression, therefore increasing the depth of conceptual measurement for a covert style of aggression. The AQ-2 includes an Inconsistent Responding Index (AQ-2-IRI), which flags a selection of 12 AQ-2 item-pairs that should not be answered inconsistently (Buss & Warren, 2000).

The AQ-2 response format is a visual analogue Likert scale of 1-5 where 1= *not at all like me* and 5= *completely like me*. The AQ-2 is designed to assess individuals ranging from age 9-88 years, and is written at third-grade reading level (age 8 years). The estimated completion time of this questionnaire is 10 minutes (Western Psychological Services, 2006). Although all participants fully completed all items and all sub-components of the AQ-2, anger was excluded from the total aggression score used in this thesis because anger is measured using Novaco's scale (2003, also see Chapter Two on thesis definitions of anger). The exclusion of the AQ anger component means that in the specific context of this thesis only, aggression (according to the AQ-2) comprises verbal, physical, indirect and hostile aggression that does *not* include anger.

Due to copyright restrictions, example items from the AQ-2 cannot be reproduced in written form. However, the items (except for indirect aggression) follow the format for the aggression questionnaire version 1 (Buss & Perry, 1992). A copy of the Buss and Perry Aggression Questionnaire is therefore included in the appendices (See Appendix A).

Procedure for Studies One to Four

Participants were provided with relevant information in accordance with The British Psychological Society ethical requirements and were required to sign and date electronically an informed consent form. Participants were unable to continue with the study if they did not tick the informed consent box. Ethical approval was received for all the studies presented in this thesis and the ethics forms confirming this are situated in Appendix G.

Participants completed the ECR-R, the AQ-2, and the NAS questionnaires either online via a secure online website (n = 157) or by completing a paper-based version of the questionnaires (n=34). Research has shown that there are no significant differences between paper-based and online completion methods for the same questionnaires (Ritter, Lorig, Laurent, & Matthews, 2004). In order to confirm that there were no significant differences between the completion type groups, a set of t-tests were performed on the data. None of the tests were significant (See Appendix B).

Presentation of all questionnaires was counterbalanced to stabilise any practice, order, or fatigue effects that may have occurred.

Procedure for Study Five

The data from the non-offenders were taken using an SPSS-generated random sample from the online survey reported in the previous studies. For the violent offenders, the three questionnaires were presented in paper-based format and were read to the participants verbatim by individuals experienced in working with young offenders. This procedure was selected so as to include participants in the study who had difficulty reading and writing and to keep presentation of the questionnaires consistent. Research has indicated that there are no significant differences between online and paper-based format (Ritter, Lorig, Laurent, & Matthews, 2004; Yu & Yu,

2007). The interviewers were all trained by the researcher using standardised instructions (see Appendix C). Interviewers were also required to sign an ethics form stating that the data collected from these interviews would not be used in any youth justice decisions and that participants' involvement in the study was to be entirely voluntary with the right to withdraw at any time (see Appendix C). The participants were asked to read and sign a consent form that was anonymised by the caseworker (see Appendix A for participant consent forms).

Presentation of all questionnaires was counterbalanced to stabilise any practice, order, or fatigue effects that may have occurred.

Data Analysis

The data analyses were different for each study, and therefore a separate data analysis section is presented in each proceeding chapter.

CHAPTER SIX

STUDY ONE – THE RELATIONSHIP BETWEEN GENERALISED ATTACHMENT INSECURITY, ANGER, AND AGGRESSION IN MALES AND FEMALES

Introduction

The literature reviewed in Chapters One, Two, and Three provide an overview of attachment theory, anger, and aggression. This chapter brings these concepts together and presents a study that investigates the relationship between anxious and avoidant attachment and anger, and anxious and avoidant attachment and aggression. Following Fraley et al. (2006), this study approaches the concept of attachment from a generalised perspective, where an individual's attachment adaptation is conceptualised as the average of four significant multiple attachments (here as mother, father, partner, and non-romantic best friend). Aggression is defined in this study as a combination of overt (physical and verbal) and covert aggression (indirect and hostile). The following research question will be examined in this chapter: How does generalised attachment avoidance and anxiety (as described by Mikulincer & Shaver's model and by Fraley et al., 2006) relate to dysfunctional anger arousal, cognition, and behaviour (Novaco, 1994) and general aggression (as described by Buss & Warren, 2000, and Anderson & Bushman, 2002) in males and females?

None of the studies noted in the general literature review has investigated Novaco's theoretical approach in the context of adult attachment, nor have these studies taken a multiple attachment approach to anger and aggression with an eye to considering how these associations relate to real-world challenges that involve anger and aggression. The study by Fraley et al. (2006; see Chapter Two) found that individuals with high scores on generalised attachment anxiety recognised facial

expressions of anger faster than those who did not score highly on this measure of attachment. Fraley et al.'s findings might therefore suggest that participants high in generalised attachment anxiety are more likely to become aggressive faster due to a hostile attribution bias (Dodge & Crick 1990).

Gender is also an important factor when investigating precursors to anger problems and aggressive tendencies. This is because in the real world of management and treatment gender difference needs to be considered as research shows that males and females differ in how and why they offend. (e.g. Moffitt et al., 2001). Anger is not always related to aggression and violence, but it is a frequent precursor (Novaco, 1994).

As discussed in Chapter 5 research on gender differences in relation to the effect of attachment on anger and aggression has yielded differing results (Arias et al., 1987; Baumeister & Sommer, 1997; Beckner, 2005; Campbell & Muncer, 1987; Magdol et al., 1997; Turner, 1991). Based on these reported findings (see Chapter Five), the research tends to point more towards females being the more aggressive gender in an attachment context in comparison with males in an attachment context. Research examining anger has also produced differing results (Lafontaine & Lussier, 2005; Turner, 1991). Differences in findings between studies may be explained by variations in the measurements used by the researchers. Overall, however, gender differences in the relationship between attachment and aggression and attachment and anger remain unclear.

Hypotheses

The literature indicates that relationship-specific attachment anxiety and avoidance have been significantly related to anger and aggression and that attachment styles are persistent beyond the prototypical attachment figure (Bowlby, 1973; Lafontaine & Lussier, 2005; Mikulincer, 1998).

Therefore, as with specific attachment styles, it *is predicted that generalised attachment avoidance and generalised attachment anxiety will both be significantly associated with anger and aggression.*

However, Bowlby (1982/1969) and Mikulincer and Shaver (2003) maintain that proximity-seeking behaviours occur before detachment. Therefore, because the prototypical response to separation is intensified proximity-seeking, a second part to the first hypothesis is included: *attachment anxiety is predicted to have a greater influence on anger and aggression than attachment avoidance*.

Attachment studies researching gender differences in aggression and anger indicate that females experience more aggression than males in the context of relationships while males experience more aggression within a broader social context beyond specific social relationships (e.g., Baumeister & Sommer, 1997). Lafontaine and Lussier (2005) also focused on gender effects in their study on attachment and anger in couple violence but their research did not examine generalised attachment nor did it examine non-romantic attachment using a generalised paradigm.

This study hypothesises that the difference in strength of statistical relationship will be greater for females than for males between generalised attachment anxiety and avoidance and anger and aggression.

Method

This section reiterates the main points relating to the participants, design, and procedure. Please refer back to Chapter Five for further details.

Participants

Two hundred and thirty two participants took part in this study (109 males and 123 females). The mean age of the male sample was 20.29 (*SD* = 2.53) and the mean age of the female sample was 19.07 (*SD* = 0.98).

Design

A correlational survey design was used to assess the relationship between generalised attachment anxiety and avoidance with aggression and anger. Age was controlled for in the analysis.

Materials

Attachment dimensions were measured using an adapted version of the Experiences in Close Relationships-Revised (ECR-R; Fraley et al., 2000) that assessed attachment to the mother, father, partner, and best friend. Anger was measured using the Novaco Anger Scale (NAS; Novaco, 2003). Aggression was measured using the Buss and Warren (2000) Aggression Questionnaire-Version 2 (AQ-2) which is based on the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957) and the Aggression Questionnaire Version 1 (Buss & Perry, 1992).

Procedure

Participants were provided with relevant information in accordance with the British Psychological Society ethical requirements and were required to electronically

sign and date an informed consent form (see Appendix A). Participants were unable to continue with the study if they did not tick the informed consent box.

Participants completed the ECR-R, the AQ-2, and the NAS questionnaires either online via a secure online website (n = 157) or by completing a paper-based version of the questionnaires (n=34). Recent research has shown that there are no significant differences between paper-based and online completion methods for the same questionnaires (Ritter et al., 2004; Yu & Yu, 2007).

Data Analysis

Before the inferential analyses were conduced, the data were screened for inconsistencies using the NAS Inconsistency Index and the AQ-2 Inconsistency Index (IRI scores). The data were then assessed for the presence of outliers and non-completion. The removal of cases due to either outliers or non-completers reduced the sample size from 232 to 191 (male n=82 and female n=109). The procedure for identifying outliers is described further in the preliminary analyses section in the Results. In the male sample, there were four non-completers and in the female sample there were two non-completers.

A G-power analysis (Faul & Erdfelder, 1992) was conducted in order to show appropriate statistical power for each gender sample with a medium effect size, an alpha level of 0.5, and a power of 0.80 (or 80%) or greater. Power analysis is considered to be important because it assesses the risk of making a type II error. The power analysis indicated that the male sample size of n=82 produced a power of 0.88 (88%) for correlations, and a power of 0.88 (88%) for a two-predictor and a power of 0.83 (83%) for a three-predictor multiple regression analyses. In the female sample power analysis indicated that the female sample size of n=109 produced a power of 0.95 (95%) for

correlations, and a power of 0.96 (96%) for a two-predictor and a power of 0.93 (93%) for a three-predictor multiple regression analyses.

The IRI scores for both the NAS and the AQ-2 were used to examine the raw data for inconsistent responses that might affect the authenticity of the data. Any responses that reached a score of 4 or greater for the NAS and 5 or greater for the AQ were excluded from the analysis. These scores were excluded because Buss & Warren (2000) and Novaco (2003) note that scores of 4 or greater are likely to be unreliable and would therefore require further case-by-case examination. As it was not possible to follow-up the participants who scored 4 or greater on the IRI, the scores were excluded. Thirteen scores on either the NAS or the AQ were inconsistent in the male sample and 4 were inconsistent in the female sample.

Results

Preliminary Analysis of the Data

As noted, the removal of cases due to either outliers or non-completers reduced the sample size from 232 to 191 (male n=82 and female n=109). Outliers were only removed when transformations did not achieve acceptable normality.

The data on age, generalised attachment anxiety, attachment avoidance, anger, and aggression were subjected to preliminary analyses for a normal distribution and for the presence of outliers (as recommended by Tabachnick & Fidell, 2007). Outliers were identified by producing boxplots (as recommended by Field, 2005; Pallant, 2007), and all identified outliers were deleted from the data if they were not controlled for by data transformations (reported below).

The data were examined for normality by inspection of both histograms and using statistical tests for normality. The most commonly used tests for normality are the Shapiro-Wilk *W* test and the Kolmogorov-Smirnov test. However, there is a disagreement in the literature about which test for normality is the most reliable. Rahman and Govindarajulu (1997) stated that the Shapiro-Wilk test is the most reliable for samples of up to 50. D'Agostino and Stephens (1986) have expressed uncertainty about using the Kolmogorov statistic to assess normality and they state that one of the best tests for normality examination is the Shapiro-Wilk test. Field (2005) and Tabachnick and Fidell (2007) both note that examination of histograms should be used together with any statistical test in assessing normality. Given the diversity of recommendations, normality was assessed by using the Shapiro-Wilk, the Kolmogorov statistic and histograms. Therefore, the decision on normality was made on the basis of all three tests.

The Shapiro-Wilk and Kolmogorov-Wilk statistics indicated that pre-transformation the scores for aggression and age were not normally distributed in the male sample. Furthermore, in the female sample, none of the variables were normally distributed, namely, age, generalised attachment avoidance, generalised attachment anxiety, anger, and aggression. Therefore, each of the variables was subjected to a data transformation (as recommended by Field, 2005; Tabachnick & Fidell, 2007).

Normality assessed by the Shapiro-Wilk and Kolmogorov-Wilk statistic provided evidence for normality for aggression scores in the male sample by performing a logarithmic transformation. For the female sample, evidence for normality was achieved for generalised attachment anxiety by performing a logarithmic transformation, for generalised attachment avoidance by performing a square-root transformation, anger by performing a square-root transformation, and aggression by performing logarithmic transformation. Examination of the histograms supports evidence for normality post transformation.

For both genders, normality could not be achieved for 'age' using square-root, logarithmic, or inverse transformations. Field (2005) notes that if data transformations fail, outliers can be removed in order to improve the normality of the variable. On this recommendation, all outliers were removed from the age variable. Fewest outliers were identified when using a logarithmic transformation of age for the male sample, where 7 outliers were found and 3 were extreme (> 3 box-plots from the mean, Pallant, 2007). In the female sample, no difference in the number of outliers identified was found between data transformations and therefore the original age variable was used. Eight outliers for age were identified and removed, 6 of which were extreme outliers, but after removal of these outliers, normality was still not achieved. The effect of age upon the findings would therefore need to be interpreted with some caution (see Appendix D).

Post-transformation, three outliers were identified in the male sample for anger, and one outlier was found in the male sample for aggression. One outlier was found in the generalised anxiety score for both males and females, and one outlier was identified in the generalised attachment avoidance score for females. Each of these outliers was removed from the inferential analyses.

In order to check the other assumptions of regression analyses, the dependent variables were examined by observing histograms, normal probability plots, and scattergrams of standardised regression residuals against standardised predicted values. The graphical inspection of the data indicates that for males and females the anger and aggression variables show reasonable linearity. The scatterplots on anger and aggression indicate reasonable homoscedascity for both males and females (see Appendix D).

Demographic Descriptions and Hypothesis One.

All participants were students or ex-students at university undergraduate or postgraduate educational level. Further descriptive statistics with means, standard deviations, and Pearson's *r* partial correlations, controlling for age and grouped by gender, are presented in Table 6. All descriptive statistics were calculated after deletion of case outliers, cases who were non-completers, inconsistency scores (from the NAS and the AQ), and all inferential statistics were calculated using the transformed scores. Partial correlations were performed in order to control for age and age was entered first in the regression equations in order to control for the effect of age in the regression equation.

Table 6.

Descriptive Statistics and Correlations of the Variables Controlling for Age and Grouped by Gender.

Variables	*M*	*SD*	GAAX	GAAV	Anger	Aggression
			Males (n=82)			
Age	20.29	2.53				
Generalised attachment anxiety [a]	43.64	15.83				
Generalised attachment avoidance [b]	49.10	16.91	.69***	--		
Anger [c]	81.16	11.69	.23*	.11	--	
Aggression [d]	55.99	12.41	.25***	.09	.54***	--
			Females (n=109)			
Age	19.07	.98				
Generalised attachment anxiety [a]	43.89	16.98	--			
Generalised attachment avoidance [b]	44.30	14.90	.75***	--	--	
Anger [c]	81.73	13.78	.46***	.29***		
Aggression [d]	44.08	15.51	.51***	.37***	.77***	

*p<.05, **p<.01 ***p<.001 1-tailed

[a] Generalised attachment anxiety is derived from the ECR-R scores on mother, father, partner, and best friend [b] Generalised attachment avoidance is derived from the ECR-R scores on mother, father, partner ,and best friend [c] Anger is derived from the total summed score of cognition, arousal, and behavioural components of the Novaco Anger Scale (2003).[d] Aggression is derived from four components in the Aggression Questionnaire (version 2) total summed score comprising hostility, verbal aggression, physical aggression, and indirect aggression.

The correlations in Table 6 show that after controlling for age, generalised attachment anxiety, and generalised attachment avoidance are both significantly associated with anger and aggression in females, while in males only generalised attachment anxiety is significantly associated with anger and aggression. The correlations also reveal that the key variables, generalised attachment avoidance and generalised attachment anxiety, are correlated very highly with each other in both genders and are therefore statistically similar. However, there is also a conceptual difference between these two attachment variables (e.g., Bartholomew & Horowitz, 1991; Bowlby, 1982/1969), as they were used as distinct indicators of attachment in further predictive statistics rather than being summed into one composite variable. The correlation between the anger and the aggression variables should also be noted: for both males and females there is a significant correlation. It should also be observed that the NAS total score includes a subcomponent measuring behavioural anger which includes verbal aggression, impulsive reaction, physical confrontation, and indirect expression of anger, therefore the size of the correlation coefficient should be considered with some caution. (.56 for males and .77 for females).

In order to examine further the relationship between generalised attachment anxiety and generalised attachment avoidance with anger and aggression, hierarchical multiple regressions (HMR) were performed for both males and females. The order of

addition of variables to the equation was determined by three means. First, it is theoretically reasonable to argue that attachment anxiety is the prototypical attachment-related response to perceived separation (Bowlby, 1982/1969; Mikulincer & Shaver, 2003); therefore attachment anxiety would be the first response to perceived separation, followed by attachment avoidance. Second, previous research has found that high scores on generalised attachment anxiety (rather than avoidance) are related to perceptual errors in the facial recognition of anger (Fraley et al., 2006). Although Fraley et al. did not examine aggression or violence their findings may suggest that participants scoring highly in generalised attachment anxiety may be more likely to become aggressive faster due to a hostile attribution bias (Dodge & Crick 1990).

Lastly, the size of the correlation coefficient as identified by Pearson's *r* correlations was used in order to provide statistical input on the strength of contribution of the attachment variables. For both males and females, two HMRs were conducted, one to predict anger (arousal, cognition, and behaviour), and one to predict aggression (physical, verbal, hostile, and indirect). Age was entered in step 1 of the models in order to control for any effects of age before the attachment variables were considered. Generalised attachment anxiety was entered in the equation at step 2 and generalised attachment avoidance was entered at step 3.

Regression model 1 (Table 7) examined the prediction of anger in males by age, generalised attachment anxiety, and generalised attachment avoidance. Each step of the model was significant overall. The *t* statistics and the *F* change statistics are significant for both step 1 and step 2. However, the overall regression statistics in Table 7 regression model 1 indicate that although attachment anxiety is a significant contributor to anger, it is step 1 (age) that contributes most to anger in males (although the difference between steps 1 and 2 is small).

Collinearity diagnostics post-transformation (recommended by Pallant, 2007), confirmed that there were no problems with multicollinearity in the variables used (step 1: Tolerance = 1.0, Variance Inflation Factor (VIF) = 1.0; step 2: Tolerance=.99, VIF = 1.01; step 3 Tolerance= .472, VIF=2.12).

Regression model 2 (Table 7) examined the prediction of anger in females by age, generalised attachment anxiety, and generalised attachment avoidance. Only the second two steps of the equation are significant overall. The *t* statistics and the *F* change statistics are only significant for step 2 and the overall regression statistics in Table 7 regression model 2 clearly indicate that generalised attachment anxiety contributes most to anger in females. Collinearity diagnostics post transformation for model 2 confirmed that there were no problems with multicollinearity in the variables used (step 1: Tolerance = 1.0, VIF = 1.0; step 2: Tolerance=.99, VIF = 1.01; step 3 Tolerance= .95, VIF=1.05).

Table 7.

Two Regression Models Predicting Anger from Generalised Attachment Anxiety and Generalised Attachment Avoidance Controlling for Age and Grouped by Gender.

Regression Model 1 - Predicting Anger in Males (n=82)						
	β	b (SE_b)	T	+R^2 Change (F change)	++Total Model R^2	SE
Step 1 Age F (1, 80) = 7.13, p<.01	-.29	-.66(.24)	-2.67**	.08 (7.13**)	.08 (8%)	11.27
Step 2 Age and GAAX F (2, 79) = 5.99, p<.01	.22	.17(.08)	2.13*	.05 (4.54*)	.13 (13%)	11.03
Step 3 Age, GAAX, and GAAV F (3, 78) = 4.08, p<.01	-.09	-.06(10)	-.60	.01(.04)	.14 (14%)	11.08

Table 7 (continued).

Regression Model 2 – Predicting Anger in Females (n=109)						
	β	b (SE_b)	T	+R^2 Change (F change)	++Total Model R^2	SE
Step 1 Age F(1,107)=2.00 *n.s*	.14	0.11 (.07)	1.41	.02 (2.00)	.02	.75
Step 2 Age and GAAX F(2,106)= 15.07 p<.001	.45	2.06 (.39)	5.26***	.20 (27.66***)	.22 (22%)	.68
Step 3 Age, GAAX, and GAAV F(3,105)=10.25 p<.001	-.11	-.08 (.09)	-.60	.01 (.70)	.23 (23%)	.68

*p<.05, **p<.01, **p<.001***

+ Unique variance explained ++ Total model variance explained

Regression model 3 (Table 8) examines the prediction of aggression in males by age, generalised attachment anxiety, and generalised attachment avoidance. Each step of the equation is significant overall: Step 1 (age), F (1, 80) = 6.61, p<.01 R^2 =.08; step 2 (age and generalised attachment anxiety) F (2, 79) =6.15 p<.01, R^2=.14, R^2 change=.06; step 3 (age, generalised attachment anxiety, and generalised attachment avoidance) F (3, 78) =4.50 p<.01 R^2=.15, R^2 change=.01. The t statistics and the F change statistics are significant for both step 1 and step 2. However, the overall

regression statistics in regression model 3 indicate that it is age that contributes most to aggression in males.

Collinearity diagnostics post-transformation for model 3 confirmed that there were no problems with multicollinearity in the variables used (Step 1: Tolerance = 1.0, VIF = 1.0; Step 2: Tolerance=.99, VIF = 1.01; Step 3 Tolerance= .53, VIF=1.91).

Regression model 4 (Table 8) examines the prediction of aggression in females by age, generalised attachment anxiety, and generalised attachment avoidance. Only the second two steps of the equation are significant overall: Step 1, F (1,107) = .47 p<.05 ; Step 2 (age and generalised attachment anxiety) F (2,106)=18.77 p<.001, R^2=.26, R^2 change=.26; step 3 (age, generalised attachment anxiety, and generalised attachment avoidance) F(3,105)=12.43 p<.001, R^2=.26, R^2 change=.00. The t statistics and the F change statistics are only significant for step 2 and the overall regression statistics in regression model 4 clearly indicate that it is generalised attachment anxiety that contributes most to aggression in females with a large variance explained of 26%.

Collinearity diagnostics post-transformation for model 4 confirmed that there were no problems with multicollinearity in the variables used (step 1: Tolerance = 1.0, VIF = 1.0; step 2: Tolerance=.99, VIF = 1.01; step 3 Tolerance= .42, VIF=2.36).

Table 8.

Two Regression Models Predicting Aggression from Generalised Attachment Anxiety and Generalised Attachment Avoidance Controlling for Age and Grouped by Gender.

Regression Model 3 - Predicting Aggression in Males						
	β	b (SE_b)	T	R^2 Change (F change)	Total Model R^2	Standard Error
Step 1 Age	-.28	-.52 (.20)	-2.57**	.08 (6.61**)	.08 (8%)	.09
Step 2 Age and GAAX	.24	.001 (.01)	2.31*	.06 (5.33*)	.14 (14%)	.09
Step 3 Age, GAAX, and GAAV	-.16	-.001 (.001)	-1.01	.01 (1.17)	.15 (15%)	.09

Table 8 (continued).

Regression Model 4 - Predicting Aggression in Females						
	β	b (SE_b)	T	R^2 Change (F change)	Total Model R^2	Standard Error
Step 1 Age	0.07	.008 (.011)	.67	.00 (.47)	.00 (0%)	.12
Step 2 Age and GAAX	.501	.36 (.059)	6.01 ***	.26 (36.91***)	.26 (26%)	.10
Step 3 Age, GAAX, and GAAV	.04	.004 (.014)	.28	.00 (.08)	.26 (26%)	.10

*p<.05, **p<.01, **p<.001*** [+] Unique variance explained [++] Total model variance explained

Hypothesis Two

In order to test the hypothesis that there would be a significant difference in the strength of relationship observed in attachment, anger, and aggression variables between males and females, a z_{obs} calculation was performed on the r values (Pallant, 2007). Statistical significance is achieved if $z_{obs} \leq -1.96$ or $z_{obs} \geq 1.96$ (Pallant). Table 9 presents the findings that show a significant difference between males and females in the relationship between generalised attachment anxiety and aggression, and generalised attachment avoidance and aggression. Furthermore, the results show that both

generalised attachment anxiety and avoidance have a greater influence on aggression in females.

Table 9.

Differences between Males and Females in Strength of Correlational Relationship: Z_{obs} Calculations for r Coefficients.

Correlational Relationship	Z_1 Males	Z_2 Females	Z_{obs} value
GANX and GAAV	.848	.973	0.84
GANX and Aggression	.255	.563	2.07*
GANX and Anger	.234	.497	1.77
GAAV and Aggression	.090	.388	2.01*
GAAV and Anger	.110	.299	1.27

* = $p<.05$

Discussion

The first hypothesis stated that generalised attachment anxiety and generalised attachment avoidance would be significantly related to anger and aggression in both males and females (examined by correlation). The first hypothesis also stated that the degree of association between attachment anxiety and anger and aggression would be greater than attachment avoidance and anger and aggression (examined by regression). The second hypothesis stated that there would be gender differences in the strength of relationship between generalised attachment, anger, and aggression.

The findings supported part of hypothesis one: that is, generalised attachment anxiety was significantly associated with anger and aggression in both genders, but generalised attachment avoidance was only significant in anger and aggression in females, not males. The findings also supported the first part of hypothesis two: that is, there were significant gender differences in the strength of relationship between generalised attachment anxiety and generalised attachment avoidance in aggression, but not in anger. Furthermore, the findings showed that the strength of relationship for generalised attachment anxiety and aggression and generalised attachment avoidance and aggression is greater in females than in males.

The hierarchical multiple regressions showed that anger in males is associated with age and generalised attachment anxiety. The age variable was difficult to transform when being prepared for parametric data analysis so therefore the findings relating to age should be taken with some caution. However, after taking this caution into consideration, the analysis indicated that the younger the age, the more likely it was that the scores on anger would be higher, and that age contributed more to anger than did generalised attachment anxiety. Although the overall regression model remained significant when generalised avoidance is considered, it was clear from the results that

after controlling for age and generalised attachment anxiety, generalised attachment avoidance did not contribute significantly to anger in males. The results also indicated that generalised attachment anxiety was a significant associate of anger in males. However, the amount of variance unique to generalised attachment anxiety as a correlate of anger was quite low.

The hierarchical multiple regression similarly revealed that age and generalised attachment anxiety are significant correlates of aggression in males. The findings from the model indicate that, as with anger, the younger in age a male individual is, the more likely aggression will occur. Although age was a significant correlate of aggression, the statistics also indicated that generalised attachment anxiety contributed slightly more to an outcome of aggression, and generalised attachment avoidance did not contribute to aggression after controlling for age and generalised attachment anxiety.

In females, generalised attachment anxiety was significantly related to anger and aggression. In addition, generalised attachment anxiety contributed statistically more to the variance of anger and aggression than did generalised attachment avoidance. Age was not found to have any significant effect on either anger or aggression in females. The results also show that generalised attachment avoidance in females does not have any further significant effect (by variance explained) on either anger or aggression after generalised attachment anxiety is taken into account.

These analyses indicate gender similarities and differences in the contribution of age upon the dependent variables. Age has a significant *inverse* relationship on anger and aggression in males, but age is not associated with anger and aggression in females. However, it is also important to note that the total percentage of variance that generalised attachment anxiety can explain within anger and aggression is low in males

but much higher in females. Generalised attachment anxiety is the key associate of aggression in females.

The findings in this study add to the literature in several key ways. Most importantly, the findings show how a generalised approach to attachment theory, an approach that has not been examined in previous research, can explain anger and aggression in both genders. The findings support extant research that relationship-specific attachment and anger (Mikulincer, 1998) and relationship-specific attachment and aggression (e.g. Bartholomew et al., 2001; Mayseless, 1991), are related. As discussed in the literature review, both relationship-specific attachment anxiety and avoidance have been associated with anger and aggression (Mikulincer, 1998). The present study has expanded this earlier research by examining the relationships between attachment, anger, and aggression using a generalised attachment approach, as initiated by Fraley et al. (2006).

The findings on gender differences support research indicating that aggression is more likely in females than in males in the specific context of attachment theory (Baumeister & Sommer, 1997; Beckner, 2005; Campbell & Muncer, 1987). The findings do not agree with Turner (1991). This inconsistency might be explained by the age difference between young adults in the current study and the pre-school children in Turner's study. Attachment processes are developmental, and therefore an adult's response to attachment system activation, although related, may be very different from a child's response.

These findings also extend knowledge about gender differences using a generalised attachment paradigm with anger and aggression. The findings showed that there were significant gender differences in the strength of relationship between generalised attachment anxiety and avoidance and aggression in males and females and

that this relationship was significantly greater in females than in males. Gender differences in males and females in the relationship between the attachment variables and anger scores, however, were not significant, indicating that attachment and anger inter-relate in a similar way between the genders, but that attachment variables influence aggression more in females then in males. This latter finding is supported by previous research (Baumeister & Sommer, 1997; Beckner, 2005; Campbell & Muncer, 1987) and extends this earlier research by testing the relationship using a generalised attachment paradigm.

It was predicted that generalised attachment avoidance would be significantly related to anger or aggression in males in this study. This hypothesis was not supported. Studies have linked relationship-specific attachment avoidance, anger, and aggression before (e.g. Mikulincer, 1998). However, no studies have examined attachment, anger, and aggression using a generalised attachment paradigm and it could be that using attachment avoidance as a general measure across the mother, father, partner, and best friend, is not powerful enough to relate to anger or aggression in males. It is possible that attachment to specific relationships is more likely to be related to anger and aggression in males than is a generalised attachment.

This study measured attachment using continuous measurements on an interval level scale, a methodological approach strongly encouraged in the literature (e.g. Fraley et al., 2006., Fraley, n.d.). However, this approach does not allow the investigation of fearful attachment dimensions, where attachment is a dimensional combination of both avoidance and anxiety. It was not possible here to measure fearful attachment because of high multicollinearity and therefore it was not possible to combine the variables in such a way as to tap into the fearful component of attachment.

This study has investigated the extent to which generalised attachment anxiety and avoidance are related to anger and aggression. The findings have added to the extant literature in four key ways. First, the findings in this study have shown that a generalised attachment paradigm has merit in explaining both anger and aggression. Second, these findings show that the generalised attachment paradigm is more effective in understanding anger and aggression in females than in males. Third, these findings showed that generalised attachment avoidance was not related to male anger or aggression. Finally, the findings indicated that generalised attachment anxiety is more related to anger and aggression than generalised attachment avoidance.

However, it is clear from the literature (e.g. Lafontaine & Lussier, 2005), and from the current study, that there is evidence to indicate relationships between insecure attachment and anger, between anger and aggression, and between insecure attachment and aggression. Therefore, it would be of theoretical and practical interest to investigate the direct and indirect effects of generalised attachment anxiety, anger, and aggression and, further, to investigate whether anger may mediate the relationship between generalised attachment anxiety and aggression.

CHAPTER SEVEN

STUDY TWO - THE RELATIONSHIP BETWEEN GENERALISED ATTACHMENT ANXIETY, ANGER, AND OVERT AGGRESSION IN MALES AND FEMALES

Introduction

Study One showed that generalised attachment anxiety is significantly related to both dysfunctional anger and general aggression in males and females and that generalised attachment anxiety was more related to anger and aggression in females than in males in the regression analysis. Study One conceptualised aggression in terms of both overt and covert aspects of aggression. Overtly aggressive behaviour comprises verbal and physical aggression while covertly aggressive behaviour comprises hostility and indirect aggression.

The main focus of this chapter is to consider the relationship between generalised attachment anxiety and overt aggression. The focus is on overt aggression because it is considered to have a more immediate negative effect than covert aggression on the individual or the 'target' of the aggression. This chapter therefore tackles the following two research questions: How does generalised attachment anxiety (Fraley et al., 2006; Mikulincer & Shaver, 2003) relate to dysfunctional anger arousal and cognition (Novaco, 1994) and overt aggression (Anderson & Bushman, 2002; Buss & Warren, 2000) in males and females? To what extent does anger cognition and arousal (Novaco, 1994) mediate the relationship between generalised attachment anxiety and overt aggression (Buss & Warren, 2000)?

It is clear from the literature that anger is a significant emotion in attachment theory (Bowlby, 1973; Lafontaine & Lussier, 2005; Mikulincer, 1998), and it is also clear that anger is a frequent precursor to aggression (Novaco, 1994; Zamble &

Quinsey, 1997). Overt aggression may result in serious outcomes like physical injury to another individual. Dysfunctional anger has been found to be a consequence of insecure attachment when emotional needs are not satisfied in significant social interactions (Bowlby; Mikulincer, 1998). Bowlby stated that differences in attachment style can have a significant impact on the ability to regulate anger effectively and he emphasised that anger can destroy emotional bonds as well as maintain and strengthen them (Bowlby, 1988; Mikulincer & Shaver, 2005). Furthermore, dysfunctional anger has been frequently linked to overt aggression and verbal and physical violence towards another individual (See Chapter 3, also see Novaco, 1994, 2003). Following previous research (Crick & Grotpeter, 1995) the present study investigates verbal aggression together with physical aggression and examines the relationship between these two types of overt aggression with generalised attachment anxiety and dysfunctional anger.

Direct relationships between attachment and anger and attachment and aggression were assessed separately in Study One. Indirect variable effects or mediation was therefore not explored in Study One. Mediation is the term used when a third variable is considered to have an influential role in the direct relationship between an independent and a dependent variable. As anger has been seen to exist in attachment (Bowlby, 1973) and aggression (Zamble & Quinsey, 1997), this study also looks at the extent to which anger *mediates* the relationship between generalised attachment anxiety and overt (physical and verbal) aggression.

Anger as a mediator between attachment and violence has been previously examined in terms of gender. Lafontaine and Lussier (2005) examined anger as a mediator between attachment and non-verbal aggression and physical assault in romantic partnerships. This study was the first to assess the impact of anger as a mediator in aggression and assault using attachment style as an independent variable.

The key findings from this study showed evidence of anger mediation between romantic attachment and psychological and physical assault in couple relationships. More specifically, the results showed gender differences in these relationships where avoidant romantic attachment in males was predictive of non-physical aggression but that anxious romantic attachment was predictive of both non-physical aggression and physical assault in females (a finding similar to those reported in the previous study of this thesis). Additionally, anger was found to be a mediator in both of these sets of findings. A key gender difference was identified: based on attachment style as the initiating variable, the outcomes in males was non-physical aggression while in females the outcome was both non-physical aggression and physical assault.

The Lafontaine and Lussier (2005) study indicated that insecure attachment was not a significant influence in overt (physical) aggression in males and that it is in fact females who are influenced most by attachment in the context of physical violence. Other studies, however, have found links between attachment and overt aggression or violence in males towards their female intimates (e.g. Fonagy, 1999; Kesner, Julian, & McKenry, 1997). It should be noted that since several studies include personality disorders within the research a comparison of findings becomes problematic (Levinson & Fonagy, 2004; de Zulueta, 1993). Although research on attachment, aggression and violence towards a non-romantic partner exists, it does appear less common than research on violence towards intimate partners. Other research on violence and attachment has found that females are more likely to be physically aggressive in relational contexts, while males are more likely to be violent in other contexts (Arias et al., 1987; Breslin, Riggs, O'Leary, & Arias, 1990; Crick, 1996,). Moreover, there is no research on generalised attachment (especially using continuous measures) and general aggression and violence. Although Bowlby (1944; 1973; 1988) clearly stated that

insecure attachment was a major factor in explaining violence and aggression, the literature on gender and on attachment and general violence is unclear. It is perhaps not surprising that differences in findings relating to attachment, aggression, and violence arise from the many different methods used to assess attachment (e.g. interviews vs. self-report questionnaires, see Methodological Review chapter), and from the assessment of samples from different social environments (e.g. prison populations versus student samples).

Methodological and sampling differences between the above studies and the present study make comparisons of these studies difficult. For example, the Lafontaine and Lussier (2005) conceptualisation of anger followed the state-trait model (Spielberger, 1988), they explored romantic attachment (not other types of attachment like parental or peer attachment), and their sample consisted of couples who self-reported physical and psychological violence. The other studies either assessed incarcerated individuals with a personality disorder (Levinson & Fonagy, 2004) or assessed individuals according to romantic (relational) attachments (Lafontaine & Lussier; Mayseless, 1991). None of these studies explored generalised attachment with anger and aggression.

This thesis extends the general parameters of Lafontaine and Lussier's mediation study and earlier studies highlighting gender differences (Arias et al., 1987; Crick & Grotper, 1995). The current study assesses gender differences in the context of generalised attachment anxiety (not avoidance) and overt aggression (the current study) in a sample whose participants have self-reported that they have never committed any violent offence. This study also explores Novaco's *internal* (not external) components of anger (cognition and arousal) together with the Buss and Warren (2000) concept of overt aggression.

Hypotheses

The first study indicated that generalised attachment anxiety was linked to both anger (arousal, cognition, and behaviour) and general aggression (covert and overt aspects) more than generalised attachment avoidance. This study seeks to explore the degree to which generalised attachment anxiety is linked to anger and overt aggression Much research has linked physical and verbal aggression with attachment theory (e.g. Lafontaine & Lussier, 2005, where physical aggression was named physical assault). *This study hypothesises that generalised attachment anxiety will predict levels of overt aggression in both males and females.*

Dysfunctional anger is considered to be evolutionarily adaptive in individuals with attachment anxiety (Bowlby, 1982/1969; 1973; 1980; 1988), and dysfunctional anger is also often present in a behavioural outcome that is aggressive (Novaco, 1975; Zamble & Quinsey, 1997). *This study hypotheses that both anger arousal and anger cognition will mediate the relationship between generalised attachment anxiety and overt aggression in both males and females.*

Method

Participants

Eighty-two males and 109 females participated in this study. The mean age of the male sample was 20.29 (*SD* = 2.53) and the mean age of the female sample was 19.07 (*SD* = 0.98).

Design

This study used a correlational survey design to assess the relationship between generalised attachment anxiety and overt aggression. Anger cognition and arousal were used as mediators in the analysis. A mediator is a variable that is hypothesised to be related to two other variables – one that is an independent variable (in this study, generalised attachment anxiety) and one that is a dependent variable (in this study, overt aggression). The examination of the influence of a mediator implies that there is a theoretically temporal order to the position of the variables in the mediation, and therefore the order and the hypotheses are directional. The aggression variable was composed of physical and verbal aggression that is indicative of overt aggression (Buss & Warren, 2000; Crick & Grotpeter, 1995).

Materials and Procedure

Attachment dimensions were measured using an adapted version of the Experiences in Close Relationships-Revised (ECR-R; Fraley et al., 2000) that assessed attachment to the mother, father, partner, and best friend. Anger was measured using the Novaco Anger Scale (NAS; Novaco, 2003). Aggression was measured using the Buss and Warren (2000) Aggression Questionnaire-Version 2 (AQ-2) which is based on

the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957) and the Aggression Questionnaire Version 1 (Buss & Perry, 1992).

As three new variables were introduced (overt aggression, anger arousal, and anger cognition), two cases were identified as outliers and were therefore filtered out from anger cognition (see the results section below for details).

As with Study One, participants were provided with relevant information in accordance with the British Psychological Society ethical requirements and were required to sign and date electronically an informed consent form (see Appendix A). Participants were unable to continue with the study if they did not tick the informed consent box.

Participants completed the ECR-R, the AQ-2, and the NAS questionnaires either online via a secure online website (n = 157) or by completing a paper-based version of the questionnaires (n=34). Research has shown that there are no significant differences between paper-based and online completion methods for the same questionnaires (Ritter et al., 2004; Yu & Yu, 2007).

Data Analysis

This study specifically examined overt aggression. The overt aggression variable was derived from the physical and verbal aggression subcomponents of the Buss and Warren (2000) Aggression Questionnaire.

As these three new variables were introduced (overt aggression, anger arousal, and anger cognition) the sample size used in this study altered. The female sample altered from n=109 to n=107 because of outlier deletion. There were 82 males (mean age=22.1 years, *SD*=6.57, and 107 females, mean age=20.0 years, *SD*=4.47.

In this study, anger was examined using Novaco's sub-components: anger arousal and anger cognition (as defined in Chapter 2). The NAS total score

conceptualises and assesses anger as a combination of cognition, arousal, and behaviour (see Chapter 2). However, the specific purpose of this study is to examine the internal cognitive and physiological aspects of anger as a mediator between generalised attachment anxiety and overt aggression. The Novaco anger behaviour component was not examined in this study as a sub-type of anger because some of the items on this sub-scale related to aggression. For example, two of the four sub-components of anger behaviour are named verbal aggression and physical confrontation. These sub-components were considered to be too conceptually similar to the Aggression Questionnaire measures when used in a mediation analysis. Indeed, Novaco's anger behaviour measure was significantly correlated with overt aggression as assessed by the physical and verbal components of the Aggression Questionnaire in both males (r=.50 p<.01) and females (r=.70, p<.001). Although it was expected that measures of anger and aggression would be significantly correlated, the wording of the items on the Novaco (2003) and Buss and Warren (2000) scales were considered to be too conceptually close.

Results

Preliminary Analysis of the Data

The new variables of overt aggression (physical and verbal aggression), anger cognition, and anger arousal were subjected to an analysis of outliers (using boxplots) and an analysis of normality by using the same methods described in Study One. The presence of outliers was examined after assessment of normality and subsequent data transformations (as recommended by Field, 2005; Tabachnick & Fidell, 2007).

Based on both the normality statistics and an examination of histograms (see Appendix E) the results indicated that overt aggression achieved normality after an inverse transformation in the female sample and after a square root transformation in the male sample. Post-transformation boxplots indicated that one male participant's score was found to be an outlier for overt aggression, and no outliers were found for the female sample. The outliers for both gender samples were removed from the inferential analyses.

Overt aggression was examined by observing histograms, normal probability plots, and scattergrams of standardised regression residuals against standardised predicted values. The graphical inspection of the data indicates that for males overt aggression shows reasonable linearity. The scatterplot indicates a slight leaning to heteroscedasticity, however. Graphical inspection of the data indicates that for females linearity is generally acceptable and that the distribution of residuals is also acceptable. The assessments in the preliminary analyses of the data indicate that after transformation the data are acceptable for use in a multiple regression analysis, although interpretation using overt aggression in males is with caution (see Appendix E).

Each of the variables was subjected to a data transformation (as recommended by Field, 2005; Tabachnick & Fidell, 2007). Normality was assessed by the Shapiro-Wilk statistic and provided evidence for normality for anger arousal in the male and female samples by performing a square root and logarithmic transformation. However, none of the Kolmogorov-Smirnov tests reached the required level for normality. A slight skewness has been noted as acceptable (Dancey & Reidy, 2004; Tabachnick & Fidell, 2007), and examination of the histograms indicated that the logarithmic transformation of anger arousal was satisfactory. The same results were found for the female sample and the logarithmic transformation of the anger arousal variable was considered to be satisfactory (see Appendix E).

Evidence for the normality of anger cognition scores in males was seen in the results of the Shapiro-Wilk statistic by performing a square root transformation of the data. Again, the Kolmogorov-Smirnov statistic did not support this result. However, inspection of the histograms indicated that the transformation of the variable was satisfactory. Evidence for normality for anger cognition in females was supported by the Kolmogorov-Wilk statistic with a square root transformation of the data. The Shapiro-Wilk statistic was close to non-significance at p=.05 and examination of the histograms indicated that the distribution was satisfactory.

All data were examined post-transformation for the presence of outliers. Two outliers were detected in female anger cognition variable: these outliers and two non-completers of the anger cognition variable were identified. However, these cases had already been filtered out in Study One from the inferential analyses with the NAS total variable.

Anger arousal and anger cognition for both males and females were examined for linearity and homoscedasticity by the inspection of histograms, normal probability

plots, and scatterplots of standardised regression residuals against standardised predicted values (as recommended by Field, 2005; Tabachnick & Fidell, 2007). The graphical analysis for anger arousal in males indicated that the residuals were generally well distributed with a small dip in the distribution on the left hand side of the mean. The graphical analysis for the female sample indicated that the residuals are evenly distributed. The scatterplot shows good linearity.

The graphical inspection of anger cognition for males showed that the residuals were reasonably well distributed in the histogram with a small dip in the distribution at the peak of the normal distribution curve. The normal probability plot indicated good linearity, and the scatterplot showed linearity with some minor overlap. The graphical analysis of anger cognition in females indicated good distributions except for a slight negative skew on the histogram. Appropriate statistical power of over 0.80 was achieved to the 0.05 level with a medium effect size for both correlations (0.30) and a two and three predictor variable multivariate regression (0.15; Faul & Erldfelder, 1992).

Hypothesis One

Descriptive statistics with means, standard deviations, and Pearson's *r* partial correlations of the measurement variables for each gender controlling for age are presented in Tables 10 and 11. Means and standard deviations were calculated after deletion of case outliers and inconsistency scores and all inferential statistics were run using the relevant transformed variables.

Table 10.

Means, Standard Deviations of Non-Transformed Variables, and Partial Correlations of Normalised Variables for Males Controlling for Age of Participant.

Variables	Mean	SD	GAAX	OA	Anger ARO	Anger COG
Age	22.1	6.57				
GAAX[a]	44.81	15.85	--			
OA[b]	25.90	6.27	.01	--		
Anger ARO[c]	27.44	4.81	.39***	.41***	--	
Anger COG[d]	28.78	4.44	.41***	.32***	.75***	--

* *p*<.05, ***p*<.01 *** p<.001

[a] Generalised attachment anxiety [b] Overt aggression [c] Anger arousal [d] Anger cognition

Table 11.

Means, Standard Deviations of Non-Transformed Variables, and Partial Correlations of Normalised Variables for Females Controlling for Age of Participant.

Variables	Mean	*SD*	GAAX	OA	Anger ARO	Anger COG
Age	20.03	4.47				
GAAX	44.47	17.10	--			
OA	24.19	8.59	.28***	--		
Anger ARO	28.23	5.42	.38***	.40***	--	
Anger COG	28.72	4.52	.40***	.32***	.75***	--

* $p<.05$, ** $p<.01$ *** $p<.001$

The correlations for the male sample in Table 10 show that, controlling for age, generalised attachment anxiety is significantly associated with anger arousal and cognition, but that it is *not* significantly associated with overt aggression. The correlations for the female sample in Table 11, however, indicate that generalised attachment anxiety is significantly associated with anger cognition, anger arousal, and overt aggression. The relationship between generalised attachment anxiety and anger is similar in both genders.

Hierarchical multiple regressions were performed in order to test the first hypothesis that generalised attachment anxiety will predict overt aggression, controlling for age (see Table 12). As the initial correlations for the male sample did not reveal significance, no further analysis was performed on this group.

Table 12.

Regression Model Predicting Overt Aggression in Females from Generalised Attachment Anxiety Controlling for Age.

	β	b (SE_b)	T	R^2 Change (F change)	Total Model R^2	Standard Error
Step 1 Age F(1,105)= 2.47, n.s	.15	.002 (.001)	1.57	.02(2.47)	.02 (2%)	.01
Step 2 Age and GAAX F(2,104)= 5.00 p<.01	.26	.02 (.01)	2.71**	.07 (7.37**)	.09 (9%)	.01

* p<.05, **p<.01 *** p<.001

Table 12 shows the prediction of overt aggression in females by age and generalised attachment anxiety. Only the second step of the equation was significant overall. The t statistics and the F change statistics were only significant for step 2 and the overall regression statistics in Table 12 indicated that it is generalised attachment anxiety that contributes to overt aggression in females.

Collinearity diagnostics post-transformation for model 1 confirmed that there were no problems with multicollinearity (Step 1: Tolerance = 1.0, VIF = 1.0; Step 2: Tolerance=1.0, VIF = 1.0).

Hypothesis Two

Baron and Kenny (1986) recommend examining the role of the mediator in the following way: (i) there must be a significant association between the independent variable (generalised attachment anxiety), and the proposed mediator(s), namely, m_1=anger arousal, m_2 = anger cognition; (ii) there must be a significant association between the independent variable and the dependent variable, (overt aggression); (iii) there must be a significant association between the proposed mediators, (anger arousal and anger cognition), and the dependent variable (overt aggression), whilst statistically controlling for any confounding influence of the independent variable (generalised attachment anxiety).

The analysis for step two has been completed as shown in Table 12 above. In order to assess the relationship for step one, two regressions were performed for the female sample. The mediation analysis was not pursued for the males because the previous analysis did not satisfy pre-requisite (ii).

The regression model shown in Table 13 examines the prediction of anger arousal in females by age and generalised attachment anxiety.

Table 13.

Regression Model Predicting Anger Arousal from Generalised Attachment Anxiety in Females (Controlling for Age).

	β	b (SE_b)	T	R^2 Change (F change)	Total Model R^2	Standard Error
Step 1 Age $F(1,105)= 0.15$ *n.s*	.14	.012 (.008)	1.45	.02 (2.09)	.02 (2%)	.08
Step 2 Age and Generalised Attachment Anxiety $F(2,104)=10.02$ $p<.001$	.38	.193 (.046)	4.20***	.14(17.62***)	.16(16%)	.08

* $p<.05$, ** $p<.01$ *** $p<.001$

Only the second step of the equation is significant. The *t* statistics and the *F* change statistics are only significant for step 2 and the overall regression statistics indicate that it is generalised attachment anxiety that contributes to anger arousal in females.

Collinearity diagnostics post-transformation confirmed that there were no problems with multicollinearity (Step 1: Tolerance = 1.0, VIF = 1.0; Step 2: Tolerance=.99, VIF = 1.01).

Table 14 shows the analysis predicting anger cognition in females by age and generalised attachment anxiety. Only the second step of the equation was significant. The *t* statistics and the *F* change statistics are only significant for step 2 and the overall regression statistics indicate that generalised attachment anxiety contributes to anger cognition in females.

Collinearity diagnostics post-transformation confirmed that there were no problems with multicollinearity (Step 1: Tolerance = 1.0, VIF = 1.0; Step 2: Tolerance=.99, VIF = 1.01).

Table 14.

Regression Model Predicting Anger Cognition from Generalised Attachment Anxiety in Females (Controlling for Age).

	β	b (SE_b)	T	R^2 Change (F change)	Total Model R^2	Standard Error
Step 1 Age $F(1,105)= 3.47$, $p>.05$	.18	.075 (.040)	1.86	.032 (3.47)	.03 (3%)	.41
Step 2 Age and Generalised Attachment Anxiety $F(2,104)=11.62$ $p<.001$	.39	.983 (.225)	4.38***	.15(19.17***)	.18(18%)	.38

* $p<.05$, ** $p<.01$ *** $p<.001$

To satisfy step (iii) of the Baron and Kenny (1986) procedure, two further regression analyses were performed (see Table 15 and Table 16 below) to assess the influence of both anger mediators (separately) on overt aggression, controlling for the effect of age and generalised attachment anxiety in females.

Table 15.

Regression Model Predicting Overt Aggression (Dependent Variable) from Anger Arousal (m_1), Controlling for Age and Generalised Attachment Anxiety (Independent Variable).

	β	b (SE_b)	T	R^2 Change (F change)	Total Model R^2	Standard Error
Step 1 Age $F(1,105)= 2.47$, $p>.05$	.15	.001 (.007)	1.57	.02 (2.47)	.02 (2%)	.01
Step 2 Age and Generalised Attachment Anxiety $F(2,104)=5.00$ $p<.01$	.26	.043(.015)	2.71**	.07 (7.37**)	.09 (9%)	.02
Step 3 Age, Generalised Attachment Anxiety (EV) and Anger Arousal (Mediator) $F(3,103)=8.08$ $p<.001$	.35	.055(.015)	3.62***	.10 (13.09***)	.19 (19%)	.02

* $p<.05$, ** $p<.01$ *** $p<.001$

Table 15 reveals that both the second and third steps in the model are significant. The *t* statistics and the *F* change statistics are also significant for steps 2 and 3. This model indicates that although generalised attachment anxiety has a significant influence on overt aggression in females, there is also a significant influence of the mediator, anger arousal, on the dependent variable of overt aggression.

Collinearity diagnostics post-transformation for the model confirmed that there were no problems with multicollinearity (Step 1: Tolerance = 1.0, VIF = 1.0; Step 2: Tolerance .99, VIF = 1.01; Step 3: Tolerance=.99, VIF = 1.01).

Table 16.

Regression Model Predicting Overt Aggression (Dependent Variable) from Anger Cognition (m_2), Controlling for Age and Generalised Attachment Anxiety (Independent Variable).

	β	$b(SE_b)$	t	+R^2 Change (F change)	++Total Model R^2	Standard Error
Step 1 Age $F(1,105)= 2.47$, $p>.05$	.15	.002 (.001)	1.57	.02 (2.47)	.02 (2%)	.01
Step 2 Age and Generalised Attachment Anxiety $F(2,104)=5.00$ $p<.01$	.26	.021 (.008)	2.71**	.07 (7.37**)	.09 (9%)	.01
Step 3 Age, Generalised Attachment Anxiety (EV) and Anger Cognition(Mediator) $F(3,103)=5.71$ $p<.001$	.26	.008 (.003)	2.57**	.06 (6.60**)	.14 (14%)	.01

* $p<.05$, ** $p<.01$ *** $p<.001$

Table 16 reveals that both the second and third steps in the model are significant. The t statistics and the F change statistics are also significant for steps 2 and 3. This

model indicates that both anger cognition and generalised attachment anxiety have a significant influence on overt aggression in females. The results also show that generalised attachment anxiety is the most influential variable on overt aggression in females.

Collinearity diagnostics post-transformation for the model confirmed that there were no problems with multicollinearity (Step 1: Tolerance = 1.0, VIF = 1.0; Step 2: Tolerance .99, VIF = 1.01; Step 3: Tolerance=.99, VIF = 1.01).

Significance of Mediation

From the findings in Study One and in this current study, it is possible to calculate a mediation analysis for the female sample using *b* coefficients and their standard errors (se_b) (see Figures 7 and 8 below). The mediation analysis can assess whether the indirect effect of generalised attachment anxiety on overt aggression is significant via an influence of anger arousal and anger cognition. If the results are significant, then they will show that anger arousal/cognition mediates the relationship between generalised attachment anxiety and overt aggression in females. Standardised beta (β) coefficients are included. Beta coefficients allow direct comparison between regressions and are included in Figures 7 and 8 to compare the difference in predictive strength between direct regression analyses. Following Baron and Kenny (1986), and Sobel (1982), the unstandardised *b* coefficients and their standard errors are used to calculate mediation significance.

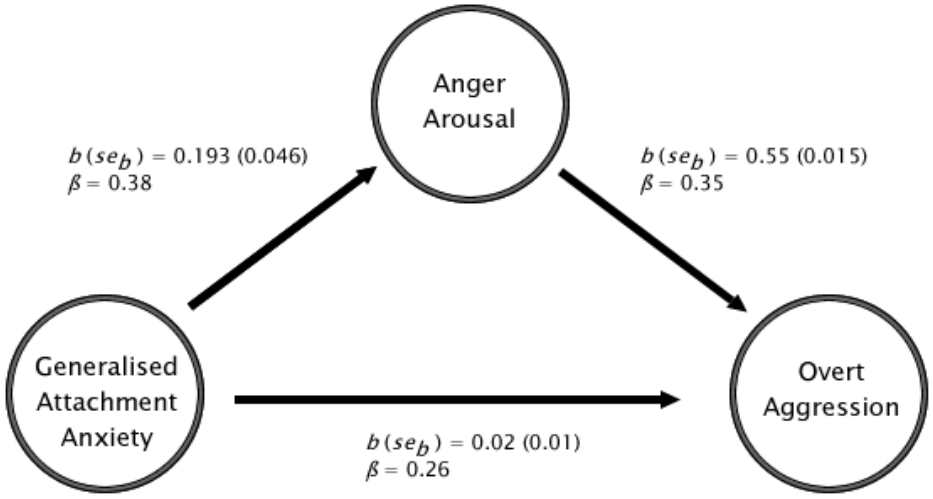

Figure 7. Diagram showing the inter-relationships between generalised attachment anxiety, anger arousal, and overt aggression in females, holding age constant.

Figure 7 displays the relationships between all the variables in the mediation analysis, indicating that there are significant predictive relationships leading from generalised attachment anxiety both directly to overt aggression and indirectly to overt aggression via anger arousal. The beta (β) coefficients reveal that the strongest prediction is from generalised attachment anxiety to anger arousal (β=.38), then from anger arousal to overt aggression (β=.35). The least powerful β is direct from generalised attachment anxiety to overt aggression (β=.26).

In order to test formally for mediation of anger arousal, the Sobel test (Sobel, 1982) was performed on the unstandardised *b* coefficients and their standard errors between the independent variable and the mediator, anger arousal, and the mediator and the dependent variable, overt aggression (following Preacher & Leonardelli, 2003). The results indicated that anger arousal significantly mediated the relationship between

generalised attachment anxiety and overt aggression in females (*Sobel's Z* = 4.17, $p<0.001$, 1-tailed).

In order to calculate the mediation analysis for anger cognition, a further Sobel test was performed. The beta (β) coefficients in Figure 8 reveal that the strongest direct prediction is from generalised attachment anxiety to anger cognition (β=.39). The predictive power is the same from generalised attachment anxiety to overt aggression as from anger cognition to overt aggression (β=.26).

Results from the Sobel test indicated that anger cognition significantly mediated the relationship between generalised attachment anxiety and overt aggression in females (Sobel's Z = 2.28, $p<0.01$, 1-tailed).

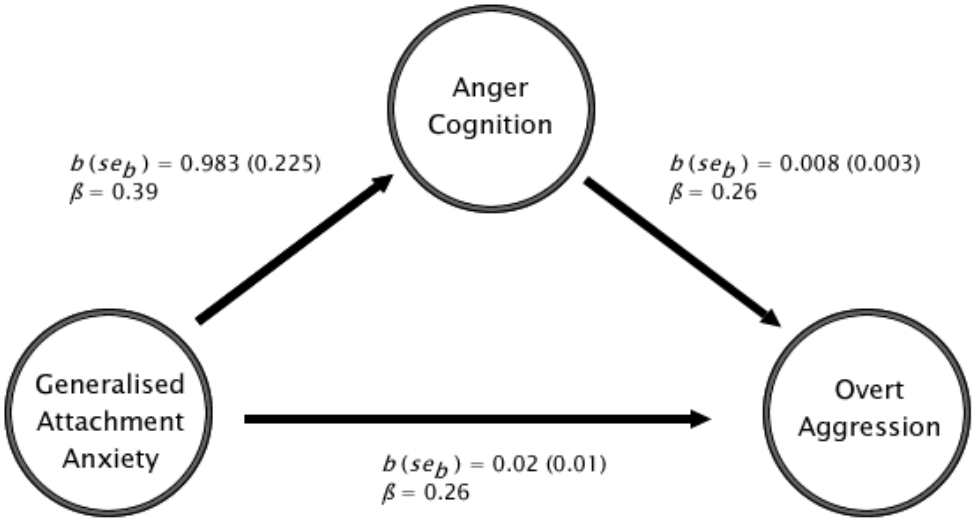

Figure 8. Diagram representing the inter-relationships between generalised attachment anxiety, anger cognition, and overt aggression in females, holding age constant.

Discussion

Hypothesis one stated that generalised attachment anxiety would predict overt aggression in males and females. The results showed that generalised attachment anxiety predicted overt aggression in females but not in males.

Hypothesis two stated that anger would mediate significantly between generalised attachment anxiety and overt aggression in males and females. The formal assessment of mediation was only calculated for females because a direct relationship between generalised attachment anxiety and overt aggression in males was not found, (as required by the Baron and Kenny (1986) procedure). Anger cognition and arousal were both found to be significant mediators between generalised attachment anxiety and overt aggression in females. The mediation statistic was notably higher for anger arousal than for anger cognition.

The results for the male sample showed that although there were significant relationships between all the variables, the formal mediation analysis did not reach significance. The results therefore did not formally support the mediation hypothesis.

Statistics on the prevalence of overt aggression and violence generally indicate that there is a greater recorded incidence of violence and criminal violence in males than in females in general (Office for National Statistics, 2006). Research has linked anxious attachment with aggression and violence (Babcock et al., 2000; Mayseless, 1991). However, this study examines the prediction of overt aggression by attachment anxiety in a sample of individuals who have not been convicted of a violent offence. Studies that focus on gender include those by Lafontaine and Lussier (2005), who found that it was male attachment avoidance, not anxiety that was directly related to non-physical aggression in couples. They also found that it was attachment anxiety in women that predicts their use of both non-physical aggression and physical assault in couples. This

study found that generalised attachment anxiety was a more powerful correlate than generalised attachment avoidance in aggression in both genders and Study One also found that attachment avoidance was not related to anger and aggression in males. Differences between the findings of the present study and those of Lafontaine and Lussier (2005) may be because their participants were couples in a violent relationship, whilst the participants in the studies are self-reported non-violent students.

Other studies by Arias et al. (1987) and Crick and Grotper (1995) found that in terms of aggression within relationships, females are more aggressive than males in relationships, while males are often more aggressive in non-relational contexts. The findings in this study support the findings reported by Arias et al., and Crick and Grotpeter.

The sample for the present research consisted of participants who were predominantly white British (so no statistical assessment of ethnic diversity was possible). Additionally, most of these participants reported that they were brought up by both biological parents and, bearing in mind attachment theory, would be less likely to be aggressive or angry. It is generally accepted that males are often more socialised than are females to behave with overt aggression (Andersen & Taylor, 2005; Batton & Ogle, 2007). However, this cohort of males may have been socialised not to hit people when angry and to direct their anger elsewhere. In addition, research already discussed highlights that females can be more aggressive in the context of attachment variables then in general situations (e.g. Arias et al., 1987; Baumeister & Sommer, 1997). Indeed, Study One revealed that generalised attachment anxiety predicted general aggression in males (with overt and covert aggression taken together). Therefore, the results of Study One suggest that the link between generalised attachment anxiety and aggression in males in this sample is covert, rather than overt, in nature.

Although the results did not reveal a significant anger mediation between generalised attachment anxiety and overt aggression in males (because the Baron & Kenny, 1986 requirements were not met), the data does show that there are significant inter-relationships between generalised attachment anxiety and anger, generalised attachment anxiety and aggression, and anger and aggression, controlling for generalised attachment anxiety. It was not possible, however, to show a statistically significant mediation of anger using the Sobel test.

CHAPTER EIGHT

STUDY THREE - THE RELATIONSHIP BETWEEN GENERALISED ATTACHMENT ANXIETY, ANGER, AND COVERT AGGRESSION IN MALES AND FEMALES

Introduction

The previous study examined the relationships between generalised attachment anxiety and overt aggression in males and females. Study Three also examined the mediating role of anger arousal and cognition in the relationship between generalised attachment anxiety and overt aggression in both sexes because previous research has shown that anger provides a mediating link between attachment anxiety and aggression Lafontaine & Lussier, 2005). The finding in the previous study that generalised attachment anxiety was *not* significantly associated with overt aggression in males may suggest that the type of aggression related to generalised attachment anxiety is covert rather than overt in nature. This proposition is indicated by the findings in Study One that show that there was a significant relationship between generalised attachment anxiety and total aggression that comprised measures of both overt and covert aggression.

The present study examines the following two research questions: How does generalised attachment anxiety (Fraley et al. 2006; Mikulincer & Shaver, 2003) relate to dysfunctional anger arousal and cognition (Novaco, 1994) and covert aggression (Anderson & Bushman, 2002; Buss & Warren, 2000) in males and females? To what extent does anger cognition and arousal (Novaco, 1994) mediate the relationship between generalised attachment anxiety and covert aggression (Buss & Warren, 2000)?

The findings by Lafontaine and Lussier (2005), who examined males and females in their mediation study, suggested that anger does have a role as a mediator between attachment and physical and non-physical aggression, but they did not explore attachment using a generalised attachment paradigm.

Hypotheses

Study One examined both overt and covert aggression as a general composite variable and found that generalised attachment anxiety predicted general aggression in males and females. Study Two found that generalised attachment anxiety was associated with overt aggression in females but not in males. Previous findings in this thesis indicate that attachment anxiety is related to general aggression but not to overt aggression in males. Additionally, previous research has shown that covert aspects of aggression are related to attachment anxiety (e.g. via measures of heart rate and physiological arousal, Mikulincer, 1998). In view of these findings, *is therefore hypothesised that generalised attachment anxiety will predict covert aggression (as assessed by self reported hostility and indirect aggression) in both males and females.*

As argued in Study Two, dysfunctional anger is considered common in individuals with attachment anxiety (Bowlby, 1973; 1989), and dysfunctional anger is sometimes present when behaviour is aggressive or violent (Buss & Warren, 2000; Novaco, 1994). Therefore, this study *hypothesises that anger arousal and anger cognition will mediate the relationship between generalised attachment anxiety and covert aggression in males and females.*

Method

Participants

Eighty-two males, mean age=22.1 years, *SD*=6.57, and 107 females, mean age=20.0 years, *SD*=4.47 participated in the study.

Design

As with the previous two studies, a questionnaire design was used to assess the relationship between generalised attachment anxiety and covert aggression. As in Study Two, anger cognition and arousal were used as mediators. The aggression variable was designed to measure hostile and indirect aggression. Both hostile and indirect aggression are considered in to be indicative of covert aggression.

As with Study Two, the anger variable was split into two variables that are Novaco's sub-components of anger arousal and anger cognition.

Materials and Procedure

Attachment dimensions were measured using an adapted version of the Experiences in Close Relationships-Revised (ECR-R; Fraley et al., 2000) that assessed attachment to the mother, father, partner, and best friend. Anger was measured using the Novaco Anger Scale (NAS; Novaco, 2003). Aggression was measured using the Buss and Warren (2000) Aggression Questionnaire-Version 2 (AQ-2) which is based on the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957) and the Aggression Questionnaire Version 1 (Buss & Perry, 1992).

As with Study One, participants were provided with relevant information in accordance with the British Psychological Society ethical requirements and were required to sign and date electronically an informed consent form (see Appendix A).

Participants were unable to continue with the study if they did not tick the informed consent box.

Participants completed the ECR-R, the AQ-2, and the NAS questionnaires either online via a secure online website (n = 157) or by completing a paper-based version of the questionnaires (n=34). Research has shown that there are no significant differences between paper-based and online completion methods for the same questionnaires (Ritter et al., 2004; Yu & Yu, 2007).

Data Analysis

Correlational methods and hierarchical multivariate regression analyses and mediation models were applied to investigate the relationships between generalised attachment anxiety, anger, and covert aggression. The data were split to investigate these relationships by gender. As noted in the previous studies, power analyses (Faul & Erdfelder, 1992) indicated that the sample size obtained in this study provided excellent power for a medium effect size and an alpha level of 0.05 (see Studies One and Two).

The introduction of a variable, covert aggression, changed the sample size to 82 males (identical to Studies One and Two) and 106 females (one case filtered out as a covert aggression variable outlier, see the results section below for details).

Similarly to Study Two, the Novaco anger behaviour variable was omitted due to potential conceptual overlap with the aggression variable (Buss & Warren, 2000). Novaco behaviour measure was significantly correlated with covert aggression (Buss & Warren) in both males (r=.25 p<.01) and females (r=.56, p<.001). Although the size of the Pearson's correlation coefficient was a medium effect size rather than a high effect size in the male sample, the Novaco anger behaviour measure was still omitted and the Buss and Warren covert aggression component was used for the purpose of consistency.

Results

Preliminary Analysis of the Data

The new derived variable, covert aggression (indirect aggression and hostility), was subjected to an analysis of outliers using boxplots and an analysis of normality using the Shapiro-Wilk test. The presence of outliers was examined after an assessment of normality and subsequent data transformations (as recommended by Field, 2005; Tabachnick & Fidell, 2007).

Normality of the Data

Data measuring covert aggression in males were tested for normality using the Shapiro-Wilk test. The Shapiro-Wilk statistics indicated that, pre-transformation, the scores for this new variable were not normally distributed. Normality was achieved after a square-root transformation. The same procedure followed for the female data. The Shapiro-Wilk test indicated that, pre-transformation, covert aggression in the female sample was not normally distributed. Normality was achieved by performing a logarithmic transformation (see Appendix F). One outlier was detected in analysing boxplots post-transformation and this case was removed from the inferential analyses.

The variable covert aggression was examined for linearity and homoscedasticity by observing histograms, normal probability plots, and scatterplots of standardised regression residuals against standardised predicted values. The graphical inspection for the outcome of covert aggression in males and females indicated that the residuals are acceptably distributed, although for the females the distribution of residuals for the covert aggression variable is more tightly clustered around the mean compared with the male distribution (see Appendix F). The assessments in the

preliminary analyses of the data quality indicate that, post transformation, the data are suitable for use in a multiple regression analysis.

Pearson's correlation coefficients for the male sample show that after controlling for age, generalised attachment anxiety is significantly associated with anger arousal, anger cognition, and covert aggression (see Table 17).

Table 17.

Means, Standard Deviations of Non-Transformed Variables, and Partial Correlations of Normalised Variables for Males Controlling for Age.

Variables	Mean	*SD*	GAX	CA	Total A
Age	20.3	2.5			
GAAX	43.64	15.83	--		
CA	29.83	7.95	.39***	--	
Anger Arousal	27.44	4.82	.22*	.50***	--
Anger Cognition	28.78	4.44	.31**	.50***	

* p<.05, ** p<.01 *** p<.001

The correlations for the female sample, shown in Table 18, indicate that after controlling for age, generalised attachment anxiety is significantly associated with anger arousal, anger cognition, and covert aggression.

Table 18.

Means, Standard Deviations of Non-Transformed Variables, and Partial Correlations of Normalised Variables for Females, Controlling for Age of Participant.

Variables	Mean	*SD*	GAAX	CA	Total A
Age	*19.10*	*.99*			
GAAX	42.92	16.12	--		
CA	29.39	8.38	.53***	--	
Anger Arousal	28.14	5.36	.36***	.66***	--
Anger Cognition	28.64	4.64	.37***	.65***	

* *p*<.05, ***p*<.01 *** p<.001

Examination of the Regression Models

The regression model (Table 19) examines the prediction of covert aggression in males by age and generalised attachment anxiety. Both steps of the equation are significant overall. The *t* statistics and the *F* change statistics are significant for both steps of the equation and the overall regression statistics indicate that both age and generalised attachment anxiety are significantly related to covert aggression, but that generalised attachment anxiety contributes to covert aggression more than age. Tolerance and Variance Inflated Factor (VIF) confirmed that there were no problems with multicollinearity (Tolerance for Step 1 = 1, VIF=1. Tolerance for Step 2=.99, VIF=1.01).

Table 19.

Regression Model Predicting Covert Aggression by Generalised Attachment Anxiety in Males, Controlling for Age.

	β	b (SE_b)	T	R^2 Change (F change)	Total Model R^2	Standard Error
Step 1 Age $F(1,80)= 8.68$ $p <.01$	-.31	- 4.44 (1.51)	-2.95**	.10 (8.68**)	.10 (10%)	.69
Step 2 Age and Generalised Attachment Anxiety $F(2,79)=12.09$ $p<.01$	.37	.017 (.004)	3.75***	.14 (14.08***)	.23 (23%)	.64

*p<.05, **p<.01 *** p<.001

The regression model (Table 20) examines the prediction of covert aggression in females by age and generalised attachment anxiety. Only the second step of the equation is significant. The t statistics and the F change statistics are significant for the second step of the equation only and the overall regression statistics in Table 20 indicate that generalised attachment anxiety contributes significantly to covert aggression in females. The Tolerance and Variance Inflated Factor (VIF) confirmed no problems with multicollinearity (Tolerance for Step 1 = 1, VIF=1, Tolerance for Step 2=.99, VIF=1.01).

Table 20.

Regression Model Predicting Covert Aggression by Generalised Attachment Anxiety in Females, Controlling for Age.

	β	b (SE_b)	T	R^2 Change (F change)	Total Model R^2	Standard Error
Step 1 Age $F(1,103) = .05$ $p > .05$	-.02	-.003 (.012)	-.21	.0 (.05)	.00 (0%)	.12
Step 2 Age and Generalised Attachment Anxiety $F(2,112)=24.15$ $p<.001$	.53	.380 (.061)	6.23***	.28 (38.81***)	.28 (28%)	.10

* $p<.05$, ** $p<.01$ *** $p<.001$

Both the male and female samples satisfied the primary requirement of the Baron and Kenny (1986) mediation procedure that the independent variable should predict the dependent variable (see Study Two). These data were subjected to four further hierarchical multiple regressions to assess the relationship between the proposed mediators, anger arousal and anger cognition, and the dependent variable, covert aggression, in both males and females. This procedure was performed to satisfy the second Baron and Kenny requirement.

The regression model (Table 21) examined the prediction of anger arousal in males by age and generalised attachment anxiety. While neither of the steps was significant, the *F* change statistic was significant with the addition of generalised attachment anxiety, indicating a trend in significance. The Tolerance and the Variance

Inflated Factor (VIF) confirmed that there were no problems with multicollinearity (Tolerance for Step 1 = 1, VIF=1, Tolerance for Step 2=.99, VIF=1.01).

Table 21.

Regression Model Predicting Anger Arousal by Generalised Attachment Anxiety in Males, Controlling for Age.

	β	$b(SE_b)$	T	+R^2 Change (F change)	++Total Model R^2	Standard Error
Step 1 Age $F(1,80)= 1.66$ $p > .05$	-.14	-22 (.170)	-1.29	.02 (1.66)	.02 (2%)	.08
Step 2 Age and Generalised Attachment Anxiety $F(2,79)=2.84$ $p>.05$	.22	.001 (.001)	1.99	.05(3.96*)	.07 (7%)	.08

*p<.05, **p<.01 *** p<.001

The regression model (Table 22) examined the prediction of anger cognition in males by age and generalised attachment anxiety. Both steps of the equation were significant overall. The *t* statistics and the *F* change statistics were significant for both steps of the equation and the overall regression statistics in Table 22 indicated that both age and generalised attachment anxiety contributed significantly to the outcome of covert aggression in males. The Tolerance and the VIF confirmed that there were no problems with multicollinearity (Tolerance for Step 1 = 1, VIF=1, Tolerance for Step 2=.99, VIF=1.01).

Table 22.

Regression Model Predicting Anger Cognition by Generalised Attachment Anxiety in Males, Controlling for Age.

	β	$b(SE_b)$	T	+R^2 Change (F change)	++Total Model R^2	Standard Error
Step 1 Age $F(1,79)= 10.65$ $p <.001$	-.345	-2.68 (.820)	-3.26**	.12 (10.65**)	.12 (12%)	.37
Step 2 Age and Generalised Attachment Anxiety $F(2,78)=9.81$ $p<.001$	.29	.007 (.003)	2.83**	.08 (8.03**)	.20 (20%)	.36

*p<.05, **p<.01 *** p<.001

The regression model (Table 23) examined the prediction of anger arousal in females by age and generalised attachment anxiety. Only the second step of the equation was significant overall. The t statistics and the F change statistics were significant for the second step of the equation only and the overall regression statistics in Table 23 indicated that generalised attachment anxiety contributed significantly to the outcome of anger arousal in females. The Tolerance and VIF confirmed that there were no problems with multicollinearity (Tolerance for Step 1 = 1, VIF=1, Tolerance for Step 2=.99, VIF=1.01).

Table 23.

Regression Model Predicting Anger Arousal by Generalised Attachment Anxiety in Females, Controlling for Age.

	β	$b(SE_b)$	T	+R^2 Change (F change)	++Total Model R^2	Standard Error
Step 1 Age F (1, 104) = 2.17 p > .05	.14	.012 (.008)	1.47	.02 (2.17)	.02(2%)	.08
Step 2 Age and Generalised Attachment Anxiety F (2, 103) = 8.93 p<.001	.36	.18 (.047)	3.93***	.13 (15.42***)	.15 (15%)	.08

*p<.05, **p<.01 *** p<.001

The regression model (Table 24) examined the prediction of anger cognition in females by age and generalised attachment anxiety. Only the second step of the equation was significant overall. The t statistics and the F change statistics were significant for the second step of the equation only and the overall regression statistics in Table 24 indicated that generalised attachment anxiety contributed significantly to the outcome of covert aggression in females. The Tolerance and Variance Inflated Factor (VIF) confirmed that there were no problems with multicollinearity (Tolerance for Step 1 = 1, VIF=1, Tolerance for Step 2=.99, VIF=1.01).

Table 24.

Regression Model Predicting Anger Cognition by Generalised Attachment Anxiety in Females, Controlling for Age.

	β	$b(SE_b)$	T	+R^2 Change (F change)	++Total Model R^2	Standard Error
Step 1 Age $F(1,104)= 3.61$ $p > .05$	.18	.076 (.04)	2.00	.03 (3.61)	.03(3%)	.40
Step 2 Age and Generalised Attachment Anxiety $F(2,103)=10.41$ $p<.001$	.37	.933 (.228)	4.08 ***	.14 (16.67***)	.17 (17%)	.38

*p<.05, **p<.01 *** p<.001

In order to satisfy the third Baron and Kenny (1986) mediation procedure requirement, four further regressions were performed. These regressions were computed to assess the predictive power of the mediator variables on covert aggression while fixing the statistical influence of generalised attachment anxiety.

The regression model (Table 25) presents the prediction of covert aggression in males by the mediator, anger arousal, holding constant generalised attachment anxiety and age. Each step of the equation was significant. The *t* statistics and the *F* change statistics were significant for all steps of the equation with increasing predictive power and the overall regression statistics in Table 25 indicate that anger arousal contributed

significantly to the outcome of covert aggression in males when age and generalised attachment anxiety were held constant. The Tolerance and the VIF confirmed that there were no problems with multicollinearity (Tolerance for Step 1 = 1, VIF=1, Tolerance for Step 2=.98, VIF=1.02. Tolerance for Step 3 = .85, VIF = 1.18).

Table 25.

Regression Model Predicting Covert Aggression by Anger Arousal Controlling for Age, and Fixing the Influence of Generalised Attachment Anxiety (Males).

	β	$b(SE_b)$	T	+R^2 Change (F change)	++Total Model R^2	Standard Error
Step 1 Age $F(1,80)= 8.68$ $p <.01$	-.31	-4.44 (1.51)	2.95**	.10 (8.68**)	.10 (10%)	.69
Step 2 Age and Generalised Attachment Anxiety $F(2,79)=12.09$ $p<.001$	.37	.02 (.00)	3.75***	.13 (17.08***)	.23 (23%)	.64
Step 3 Age, Generalised Attachment Anxiety, and Anger Arousal (Mediator) $F(3,78)=15.94$ $p<.001$	.40	3.66 (.854)	4.28***	.15 (18.34***)	.38 (38%)	.58

*p<.05, **p<.01 *** p<.001

The next regression model (Table 26) presents covert aggression in males by the mediator, anger cognition, holding constant generalised attachment anxiety and age. Each step of the equation was significant. The t statistics and the F change statistics were significant for all steps of the equation and the overall regression statistics in Table

26 indicated that anger arousal contributed significantly to covert aggression in females with age and generalised attachment anxiety held constant. Tolerance and the VIF confirmed no problems with multicollinearity (Tolerance for Step 1 = 1, VIF=1, Tolerance for Step 2=.99, VIF=1.02, Tolerance for Step 3 = .83 VIF = 1.21).

Table 26.

Regression Model Predicting Covert Aggression by Anger Cognition, Controlling for Age and Fixing the Influence of Generalised Attachment Anxiety (Females).

	β	$B(SE_b)$	T	+R^2 Change (F change)	++Total Model R^2	Standard Error
Step 1 Age $F(1,79)= 9.56$ $p <.01$	-.34	-4.59 (1.46)	-3.15**	.11 (9.96*)	.11 (11%)	.66
Step 2 Age and Generalised Attachment Anxiety $F(2,78)=12.70$ $p<.001$	.367	.016 (.004)	4.22***	.13 (13.82***)	.23 (23%)	.62
Step 3 Age, Generalised Attachment Anxiety, and Anger Cognition (Mediator) $F(3,77)=16.36$ $p<.001$	.424	.75 (.176)	4.26***	.14 (18.11***)	.39 (39%)	.56

*p<.05, **p<.01 *** p<.001

The regression model (Table 27) presents the prediction of covert aggression in females by the mediator, anger arousal, with generalised attachment anxiety and age held constant. Steps two and three were significant. The t statistics and the F change statistics were significant in steps two and three of the equation and the overall regression statistics in Table 27 indicated that anger arousal contributed significantly to

the outcome of covert aggression in females with age and generalised attachment anxiety held constant. The results show that a high amount of the variance was explained (53% at Step 3). The Tolerance and the VIF confirmed that there were no problems with multicollinearity (Tolerance for Step 1 = 1, VIF =1, Tolerance for Step 2 = .99, VIF = 1.01. Tolerance for Step 3 = .85, VIF = 1.17).

Table 27.

Regression Model Predicting Covert Aggression by Anger Arousal, Controlling for Age and Fixing the Influence of Generalised Attachment Anxiety (Females).

	β	$B(SE_b)$	T	$+R^2$ Change (F change)	++Total Model R^2	Standard Error
Step 1 Age $F(1,103)= .05$ $p > .05$	-.02	-.003 (.012)	-.214	.00 (.05)	.00 (0%)	.12
Step 2 Age and Generalised Attachment Anxiety $F(2,102)=19.44$ $p<.001$	.53	.38 (.061)	6.23***	.28 (38.81***)	.28 (28%)	.10
Step 3 Age, Generalised Attachment Anxiety, and Anger Arousal (Mediator) $F(3, 101)=37.38$ $p<.001$	.541	.764 (.105)	7.30***	.25 (53.33***)	.53 (53%)	.08

*$p<.05$, **$p<.01$ *** $p<.001$

The next regression model (Table 28) presents the prediction of covert aggression in females by the mediator, anger cognition, holding generalised attachment anxiety and age constant. Steps two and three of the regression equation were

significant. The *t* statistics and the *F* change statistics were significant in steps two and three of the equation and the overall regression statistics in Table 28 indicated that anger cognition contributed significantly to the outcome of covert aggression in females with age and generalised attachment anxiety held constant. As in female anger arousal, the results also show a high degree of variance explained (51% in Step 3). The Tolerance and the VIF confirmed that there were no problems with multicollinearity (Tolerance for Step 1 = 1, VIF = 1, Tolerance for Step 2 = .99, VIF = 1.01, Step 3 Tolerance = .84, VIF = 2.00).

Table 28.

Regression Model Predicting Covert Aggression by Anger Cognition, Controlling for Age and Fixing the Influence of Generalised Attachment Anxiety (Females).

	β	$b(SE_b)$	T	+R^2 Change (F change)	++Total Model R^2	Standard Error
Step 1 Age $F(1,103)= .05$ $p > .05$	-.02	-.003 (.012)	-.214	.00 (.05)	.00 (0%)	.12
Step 2 Age and Generalised Attachment Anxiety $F(2,102)=19.44$ $p<.001$	.53	.38 (.061)	6.23***	.28 (38.81***)	.28 (28%)	.10
Step 3 Age, Generalised Attachment Anxiety, and Anger Cognition (Mediator) $F(3,101)=35.04$ $p<.001$	.53	.15 (.022)	6.95***	.23 (48.24***)	.51 (51%)	.08

*$p<.05$, **$p<.01$ *** $p<.001$

Examination of Mediation

Based on the findings from the regression equations and the Baron and Kenny (1986) procedure for testing for significance of mediation, three mediation assessments were made, namely, (i) of anger cognition as a mediator between generalised attachment

anxiety and covert aggression in males; (ii) of anger arousal as a mediator between generalised attachment anxiety and covert aggression in females; (iii) of anger cognition as a mediator between generalised attachment anxiety and covert aggression, in females. Anger arousal in males was not examined because generalised attachment anxiety was not found to be significantly related to the mediator (anger arousal).

Figure 9 shows inter-relationships between the variables.

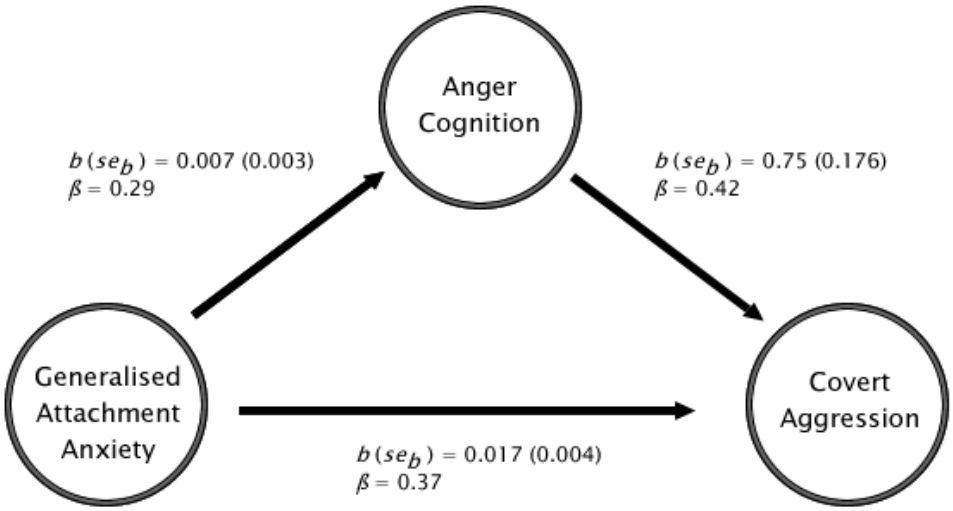

Figure 9. Mediation diagram representing the relationships between generalised attachment anxiety, anger cognition, and covert aggression in males, controlling for age.

Figure 9 displays the relationships between all the variables included in the mediation analysis. The model in Figure 9 indicates that there are significant predictive relationships leading, both directly and indirectly, from generalised attachment anxiety to covert aggression in males. The Sobel test was performed on the unstandardised *b* coefficients and their standard errors between generalised attachment anxiety and the mediator, anger, and the mediator and the dependent variable, covert aggression (Preacher & Leonardelli, 2003). The Sobel test indicated that there was a significant

mediation of anger between generalised attachment anxiety and covert aggression in males (Sobel's $Z = 4.19$, $p<.001$).

The second mediation analysis was conducted on the female sample and examined anger arousal as a mediator between generalised attachment anxiety and covert aggression. Figure 10 shows the inter-relationships between the variables diagrammatically:

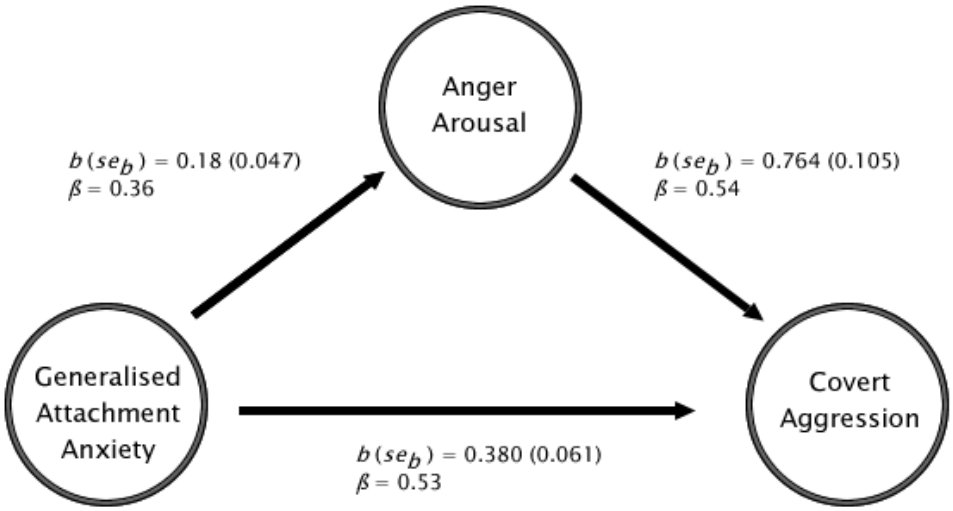

Figure 10. Mediation model representing the relationships between generalised attachment anxiety, anger arousal, and covert aggression in females, controlling for age.

Figure 10 shows the relationships between all the variables included in the mediation analysis. The model indicates that there are significant predictive relationships leading, both directly and indirectly, from generalised attachment anxiety to covert aggression in males. The Sobel test was performed on the unstandardised *b* coefficients and their standard errors between generalised attachment anxiety and the mediator (anger arousal), and the mediator and the dependent variable (covert aggression) (Preacher & Leonardelli, 2003). The Sobel test indicated that there was a

significant mediation of anger between generalised attachment anxiety and covert aggression in females (Sobel's $Z = 3.40$, $p<.001$).

The final mediation analysis was conducted on the female sample and examined anger cognition as a mediator between generalised attachment anxiety and covert aggression. Figure 11 represents inter-relationships between the variables diagrammatically:

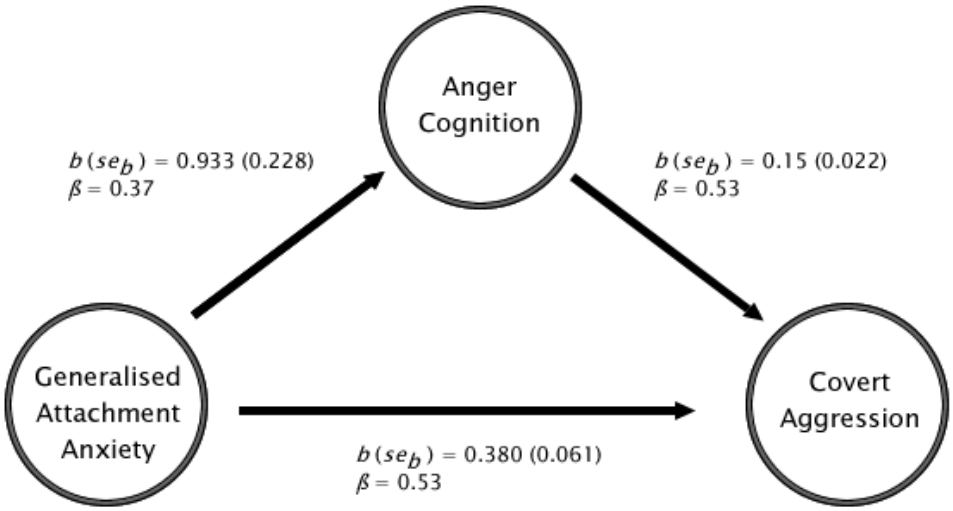

Figure 11. Mediation model representing the relationships between generalised attachment anxiety, anger cognition, and covert aggression in females, controlling for age.

Figure 11 displays the relationships between all the variables included in the mediation analysis. The model indicates that there are significant predictive relationships leading from generalised attachment anxiety, both directly and indirectly, to covert aggression in females. The Sobel test was performed on the unstandardised *b* coefficients and their standard errors between generalised attachment anxiety and the mediator, anger, and the mediator and the dependent variable, covert aggression

(Preacher & Leonardelli, 2003). The Sobel test indicated that there was a significant mediation of anger between generalised attachment anxiety and covert aggression in females (Sobel's $Z = 3.51$, $p<.001$).

Discussion

Hypothesis one stated that generalised attachment anxiety would significantly predict an outcome of covert aggression in both males and females. The results supported the hypothesis. Hypothesis two stated that anger arousal and anger cognition would mediate the relationship between generalised attachment anxiety and covert aggression in males and females. The results supported hypothesis two except for anger arousal in males. Generalised attachment anxiety did not predict anger arousal in males and therefore the mediation analysis for this hypothesis was not performed following the Baron and Kenny (1986) procedure.

The results of both Study Two and this present study reveal that the role of anger as a mediator in terms of covert and overt aggression has significance in different ways for both males and females. This study indicates that it is the cognitive aspect of anger that mediates the relationship between generalised attachment anxiety and covert aggression in males, while for females both anger arousal and cognition are significant mediators. In addition, findings from Study Two and the present study show that generalised attachment anxiety predicts both overt and covert aggression in females but generalised attachment anxiety only predicts covert aggression in males. All these findings indicate that the strength of effect of generalised attachment anxiety on anger, and subsequently on aggression, is greater in women than in men.

Although previous research does not differentiate between covert and overt aggression in the context of generalised attachment, the finding in this study of a relationship between generalised attachment anxiety and covert aggression supports

similar previous literature that investigates relationship-specific attachment anxiety to parents (e.g. Bowlby, 1973) and to romantic partners (e.g. Crick & Grotpeter, 1995; Lafontaine & Lussier, 2005). However, as the studies presented in this thesis are the first to explore attachment from a generalised paradigm in the context of anger and aggression and also in the context of anger mediation, direct comparisons are not possible.

Interestingly, in males, a direct link was found between generalised attachment anxiety and covert aggression, though no connection with generalised attachment anxiety and overt aggression was found. This study also provides evidence for anger cognition as a mediator between generalised attachment anxiety and covert aggression in males, and anger cognition and arousal as mediators in the female sample. Gomez and Mclaren (2007) presented a similar style of study to the current study when they investigated both mother and father attachment to generalised aggression using a scale that included mild level aggression in a non-offending sample. Although gender differences were not specifically examined, the Gomez and McLaren study found a link between parental secure attachment and reduced general aggression scores.

One explanation for the link between generalised attachment anxiety and covert aggression in males may be taken from the sample demographics. A large proportion of the male sample is involved in higher education in an environment where there is a majority of females. Over 80 per cent of the sample was brought up by both biological parents (as reported by participants). Educational achievement and parental involvement are protective factors for the development of delinquency of which aggression is often a part (e.g. Loeber & Farrington, 2001).

Findings from Study Two and the present study show that the power of generalised attachment anxiety to explain covert aggression is greater than the power of

the attachment variable to explain overt aggression. As the sample are students they may be less likely to be aggressive or angry in the same way as an offending sample may be and it is possible that the nature of the sample explains why it is covert aggression, rather than overt aggression, that generalised attachment anxiety best predicts in this study. This point about the sample highlights that the generalisation of the findings to offending populations is uncertain. The findings in this study warrant further investigation into the relationship between generalised attachment and aggression, and further, the study needs to be replicated in an offending sample. The final study in this thesis uses male young offenders as the participant group.

The results reported in this chapter may provide tentative implications for the treatment of individuals who experience covert aggression in their social interactions. For example, it is possible that individuals who experience chronic covert aggression will have had anxious attachment experiences with others and that anger and covert aggression has become a general aspect of their management of social relationships based on expectations that others will not meet their needs. Therefore, treatment may involve awareness training of how previous experiences with others in relationships may influence their general relationship management style – including how social expectation of others may lead to anger that can turn into an expression of covert aggression.

CHAPTER NINE

STUDY FOUR - PROFILES OF MULTIPLE ATTACHMENTS IN AGGRESSIVE MALES AND FEMALES

Introduction

The previous three studies detailed associations between generalised attachment anxiety, anger arousal, anger cognition, and both overt and covert aggression. Those studies also noted gender differences in these inter-relationships.

In general, the findings so far support literature linking relationship-specific attachment with dysfunctional anger (Mikulincer, 1998) and aggression or violence (Lafontaine & Lussier, 2005) and connecting dysfunctional anger with aggression (Novaco, 1994). The findings in the present studies of this thesis indicate that the higher an individual's score on measures of generalised attachment anxiety, the more likely individuals are to experience problematic anger and aggression, as defined by Novaco (1994) and Buss and Warren (2000).

Study One indicated that after statistically controlling for the effect of generalised attachment anxiety, generalised attachment avoidance was no longer significant in the regression model with anger arousal, cognition, and behaviour, or aggression after the effect of generalised attachment anxiety was taken into account. Therefore generalised attachment avoidance was not used in further analyses. However, research using different statistical designs and different measurement scales has identified relationship-specific attachment avoidance as important in dysfunctional anger and aggression (Gormley, 2005; Mikulincer, 1998; Mikulincer & Shaver, 2005). Furthermore, research focusing on individuals who have displayed physical acts of

violence has also highlighted relationship-specific attachment avoidance as a significant correlate (Lafontaine & Lussier, 2005).

While the previous studies have assessed aggression using the whole range of participant scores and with large samples of data, this study focuses on those participants most central to practical interest: individuals who score particularly highly on self-reported aggression, as measured by the AQ (Buss & Warren, 2000). Obtaining large samples of data enable sophisticated statistical techniques to be used. However, the examination of large samples omits valuable detail at the individual participant level, especially for professionals who work with aggressive individuals. This current study also focuses on the representation of attachment avoidance and anxiety together in order to assess those participants who score highly on both attachment anxiety and attachment avoidance. Participants who score highly in both attachment anxiety and attachment avoidance would show a fearful attachment style (see Chapter Three for definitions of attachment styles).

This study is therefore concerned with the following research question: How do relationship-specific patterns of attachment relate to self-reported overt and covert aggression in males and females?

Hypotheses

Multiple Attachment Profiles: Males

Studies Two and Three found that generalised attachment anxiety was statistically related to covert (not overt) aggression in males. Therefore, covert aggression will be focus of this investigation in the male sample. Based on previous findings that indicate the significance of attachment avoidance (Gormley, 2005; Levinson & Fonagy, 2004; Mikulincer, 1998; Mikulincer & Shaver, 2005 Ross &

Pfäfflin, 2004), this current study includes attachment avoidance in combination with generalised attachment anxiety as a dimensional measure.

It is predicted that males who score very highly on self-reported covert (hostile and indirect) aggression will have higher scores in attachment anxiety and avoidance than in attachment security.

Multiple Attachment Profiles: Females

In Studies Two and Three it was found that generalised attachment anxiety was related to both overt and covert aggression in females. As with the male sample, this study includes the dimension of attachment avoidance in combination with generalised attachment anxiety. The findings of Studies Two and Three suggest that females scoring high on covert and overt aggression should show significantly more insecure patterns of attachment than secure patterns.

It is predicted that females who score very highly on self-reported covert (hostile and indirect) and overt (physical and verbal) aggression, will have higher scores in attachment avoidance and attachment anxiety than in attachment security.

Method

Participants

There were 16 participants in the present study, five males (mean age 19.86, *SD* = .064) and 11 females (mean age 19.18 *SD* = 0.72). All participants were current university students at Leicester University and self-reported that they had never been convicted of a violent offence.

Design

This study used a case study design using quantitative data from the questionnaires on aggression and attachment (AQ, Buss & Warren, 2000; ECR-R, Fraley et al., 1998). The variables used in this study are listed in Table 29 below.

Table 29.

Variables used in the Study for both Males and Females.

*Attachment Variables Used	**Aggression Variables Used
Attachment anxiety to the mother	Physical Aggression
Attachment anxiety to the father	Verbal Aggression
Attachment anxiety to the partner	Hostile Aggression
Attachment anxiety to the best friend	Indirect Aggression
Attachment avoidance to the mother	
Attachment avoidance to the father	
Attachment avoidance to the partner	
Attachment avoidance to the best friend	

**Measured by the Experiences in Close Relationships Scale- Revised (Fraley et al., 1998)*

***Measured by the Aggression Questionnaire, Version 2, Buss & Warren, 2000)*

This study was designed so that scores on all the attachment variables could be represented graphically in two-dimensional space (after Fraley, n.d). The scores on the attachment variables were taken from a sub-group of participants from the overall sample who had scored very highly on standardised T ($T \geq 70$) scores of physical, verbal, hostile, and indirect aggression (for females) and hostile and indirect aggression (for males). One graph was presented for each type of aggression and by gender. Therefore, there were four graphs were designed for females (specific relationship attachment scores on physical, verbal, hostile, and indirectly aggressive females), and two graphs were designed for males (specific relationship attachment scores on hostile and indirectly aggressive females).

The graphs follow the work of Fraley (n.d.) who designed the graphs to represent visually an individual's attachment scores based on their completion of the shortened version of the ECR-R, the 10-item Relationship Structures Scale (Fraley et al., 2006). This study uses all the 36 ECR-R items rather than the short 10-item version.

The graph represents attachment in two ways. The first representation of attachment is categorical where four attachment quadrants are used: secure, avoidant, anxious, and fearful (based on Bartholomew's representation of attachment categories, 1992, see Figure 3). The second representation of attachment is two-dimensional where two continuums depict high to low attachment anxiety, and high to low attachment avoidance. The axes on the graph are based on scores ranging from 1 to 7, where 7 = very anxious or avoidant and 1= not at all anxious or avoidant in attachment style. Further details on how the scores are derived are provided in the data analysis sections.

Materials and Procedure

As with the previous studies, attachment dimensions were measured using an adapted version of the Experiences in Close Relationships-Revised (ECR-R; Fraley et al., 2000) that assessed attachment to the mother, father, partner, and best friend. Aggression was measured using the Buss and Warren (2000) Aggression Questionnaire-Version 2 (AQ-2) which is based on the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957) and the Aggression Questionnaire Version 1 (Buss & Perry, 1992).

All participants completed the ECR-R, the AQ-2, and the NAS questionnaires online.

Data Analysis

Understanding the attachment dimensions. The attachment scores on the ECR-R ranged from 1 to 7, where 7 = very attachment anxious or avoidant and 1= not at all attachment anxious or avoidant. The ECR-R is a 36-item scale with 18 questions measuring attachment anxiety and 18 questions measuring attachment avoidance. Each item required a response for each of the four significant relationships. Therefore, there were 36 responses for mother, 36 for the father, 36 for the partner, and 36 for the best friend. Each participant received two scores per relationship: these were a score for attachment avoidance and a score for attachment anxiety. In order to represent the scores dimensionally, each score for each participant was divided by 7 (as designed by Fraley, n.d). Dividing the total score by 7 enabled the result to be represented on a continuum of 1-7 for avoidance and 1-7 for anxiety (as shown by the axes on each of the graphs). It is advantageous to represent attachment scores in two-dimensional space because it allows easy visual evaluation of the degree to which an individual sits within each attachment type simultaneously, thus facilitating the assessment of multiple attachments in individual cases. This method has been presented by Fraley (n.d), but

his research to date has not looked at attachment scores in this way in the context of aggression.

In order to describe degrees of attachment insecurity, attachment dimensions are described in this study as: 1-3 = low anxiety/avoidance, above 3-5 = moderate, above 5-7= high anxiety/avoidance. These diagrams have not been used before in the context of degrees of attachment insecurity and have been created by the researcher as a visual aid to assess the extent of low, moderate, and high scores. The term 'insecure attachment' relates to anxious, avoidance, or fearful styles of attachment (see Chapter Three for definitions).

Understanding the Aggression Scores. Table 30 presents the aggression and anger *T* scores, which are interpreted according to the standardised norms provided by Buss and Warren (2000). For the Aggression Questionnaire, there were three scoring charts, one for participants aged 9-18 years, one for ages 19-39, and one for ages 40 and above. Within these charts there were separate *T* scores for males and females for total aggression, physical aggression, and verbal aggression.

As in the previous studies, any aggression scores that were inconsistent following the procedure by Buss and Warren (2000) were omitted from the study as they were considered to be unreliable. For simplicity, participants who self-reported physical, verbal, hostile, and/or indirect aggression will be referred to as 'physically aggressive participants', 'verbally aggressive participants', and so on.

Table 30.

Interpretation of T-Score Range for each Sub-Type of Aggression (Buss & Warren, 2003).

T-Score Range	Interpretation
≤ 29*T*	Very Low Aggression
30*T* – 39*T*	Low Aggression
40*T* – 44*T*	Low Average Aggression
45*T* – 55*T*	Average Aggression
56*T* – 59*T*	High Average Aggression
60*T* – 69*T*	High Aggression
≥70*T**	Very High Aggression *Participants scoring in this range were selected for this study.*

*A standardised score of 70 or above is equivalent to being two standard deviations above the mean.

Results

Hypothesis One: *It is predicted that males who score very highly on self-reported covert (hostile and indirect) aggression will have higher scores in attachment anxiety and avoidance then in attachment security.*

Attachment Dimensions for Self-Reported Hostile Aggressive Males

Four male participants scored very highly (≥70*T*) on hostile aggression. Table 31 presents the average attachment scores per relationship.

Table 31.

Attachment Scores on Anxiety and Avoidance for the Mother, Father, Partner, and Best Friend for Males Scoring Very High on Hostile Aggression.

	Attachment Anxiety				Attachment Avoidance			
Participant	Mother	Father	Partner	Best Friend	Mother	Father	Partner	Best Friend
3	1.11	4.11	4.00	5.11	2.61	5.61	4.00	3.56
12	4.78	4.67	5.78	5.61	4.11	4.61	5.44	5.28
13	1.83	1.83	4.94	2.94	4.94	5.17	5.17	5.00
14	3.44	3.89	6.28	5.17	4.22	4.89	1.94	2.06

* 1= lowest attachment anxiety/avoidance and 7=highest attachment anxiety/avoidance scores.

Figure 12 shows many of the attachment scores as high and moderate anxiety and/or avoidance. Only one score is recorded as low anxiety and avoidance (to the mother) and most of the scores show high degrees of attachment avoidance rather than

attachment anxiety. Six scores are located in each of the fearful avoidant quadrant and the avoidant quadrant.

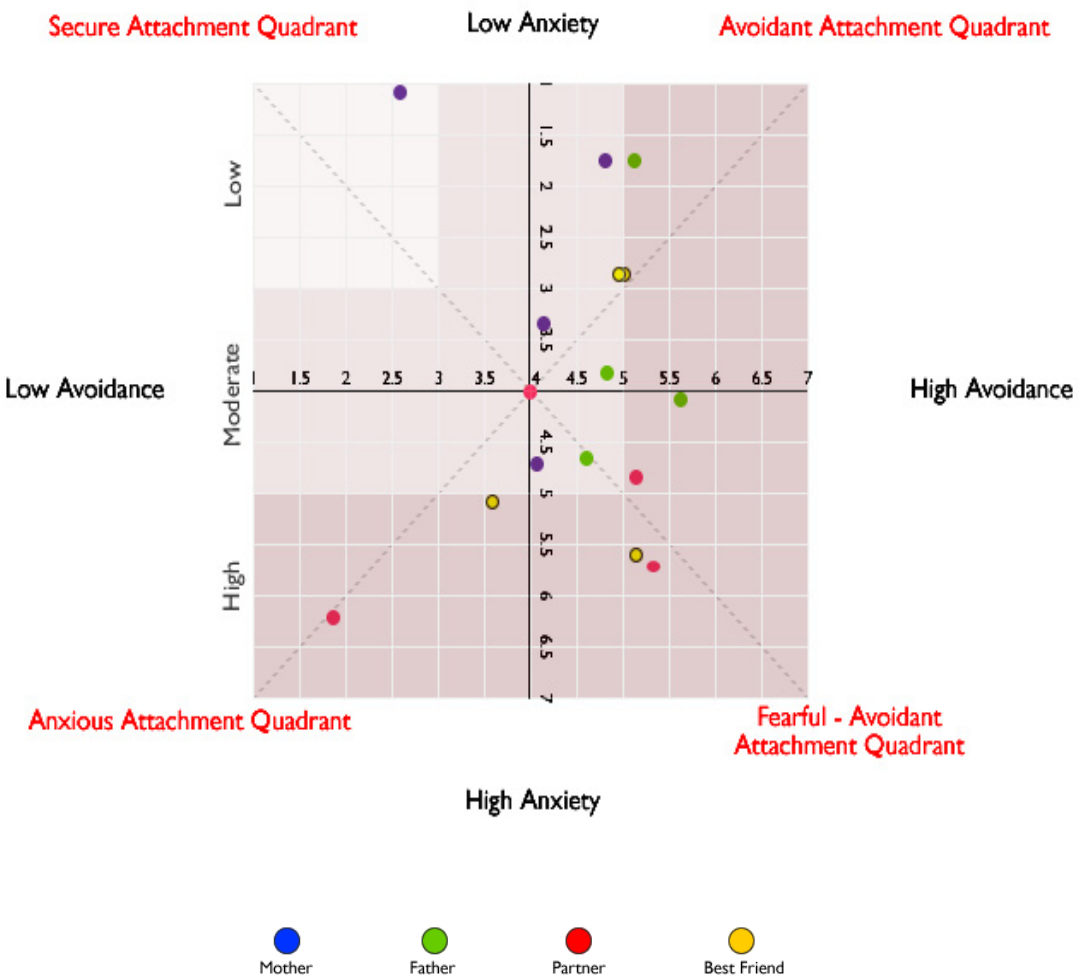

Figure 12. Attachment dimensions to the mother, father, partner, and best friend for self-reported hostile aggressive males (n=4).

The scores depicted in Figure 12 show that males who score very highly on hostile aggression show more insecure attachments in their significant relationships than males who are physically or verbally aggressive.

Attachment Dimensions for Self-Reported Indirectly Aggressive Males

Two male participants scored very highly on indirect aggression. Table 32 presents the average attachment scores per relationship.

Table 32.

Attachment Scores on Anxiety and Avoidance for the Mother, Father, Partner, and Best Friend for Males Scoring Very High on Indirect Aggression.

	Attachment Anxiety				Attachment Avoidance			
Participant	Mother	Father	Partner	Best Friend	Mother	Father	Partner	Best Friend
3	1.11	4.11	4.00	5.11	2.61	5.61	4.00	3.56
14	3.44	3.89	6.28	5.17	4.22	4.89	1.94	2.06

* 1= lowest attachment anxiety/avoidance and 7=highest attachment anxiety/avoidance scores.

Figure 13 shows only one attachment dimension in the secure quadrant (mother). Most scores again indicate moderate or high degrees of anxiety/avoidance and most scores are located in the avoidant quadrant.

As with the scores for hostile aggression, Figure 13 shows that most attachment scores for indirectly aggressive males are insecure rather than secure (see Table 32 for specific scores). Figures 14 and 15 both show that insecure attachment is more prevalent in covertly aggressive males than in overtly aggressive males.

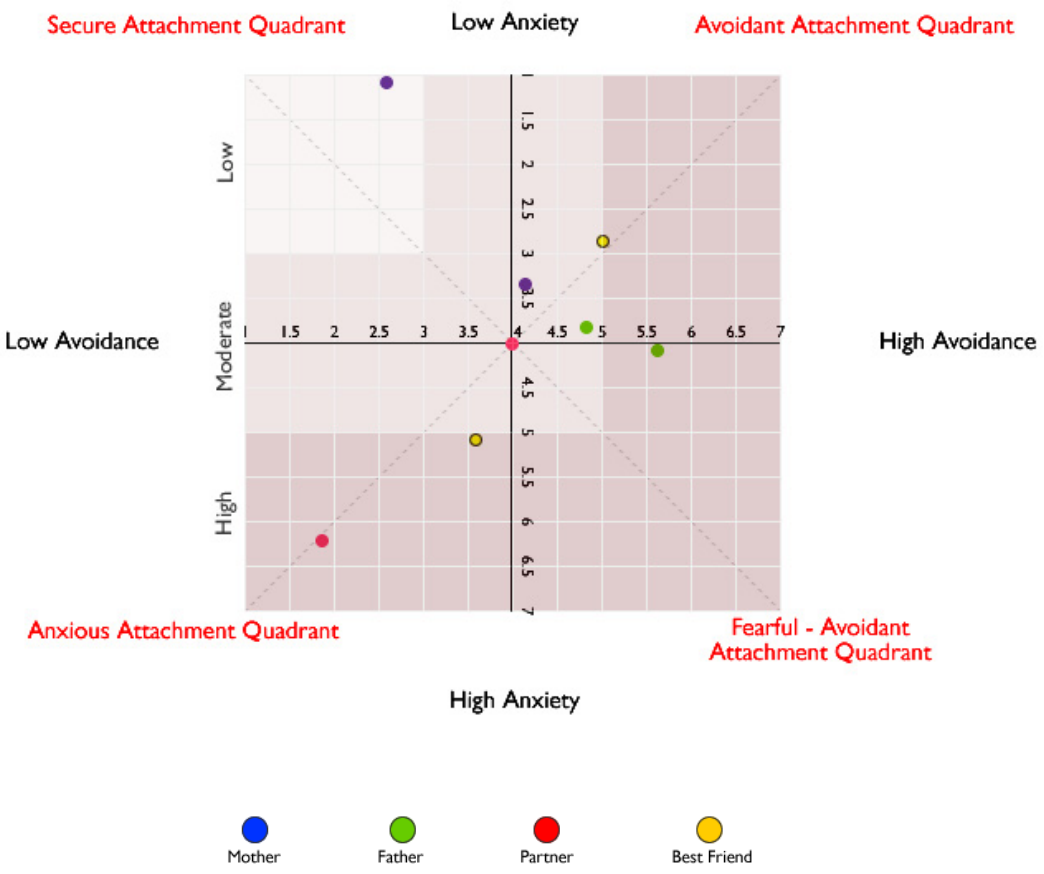

Figure 13. Attachment dimensions to the mother, father, partner, and best friend for self-reported indirect aggressive males (n=2).

Hypothesis Two - *It is predicted that females who score very highly on self-reported covert (hostile and indirect) and overt (physical and verbal) aggression, will have higher scores in attachment avoidance and attachment anxiety than in attachment security.*

Four female participants scored very highly on physical aggression. Table 33 presents the average attachment scores per relationship.

Table 33.

Attachment Scores on Anxiety and Avoidance for the Mother, Father, Partner, and Best Friend for Females Scoring Very High on Physical Aggression.

	Attachment Anxiety				Attachment Avoidance			
Participant	Mother	Father	Partner	Best Friend	Mother	Father	Partner	Best Friend
4	2.89	2.89	2.72	2.56	3.61	3.72	1.33	1.33
5	1.67	1.50	2.33	2.17	3.22	3.06	1.94	1.89
6	3.11	3.22	3.72	4.44	3.94	4.17	2.17	3.06
7	2.39	2.83	2.50	2.39	1.56	3.22	1.50	1.61

*1= lowest attachment anxiety/avoidance and 7=highest attachment anxiety/avoidance scores.

Females' combined attachment scores are displayed in Figure 14. As with the male sample, this two-dimensional graph represents the four female participants' attachment scores on both anxiety and avoidance with respect to their mother, father, partner, and best friend.

In Figure 14, all scores but two are in the secure quadrant. There is one score on attachment to the father in the avoidant quadrant and one score on attachment to the best friend in the anxious quadrant. In terms of the continuums of anxiety and avoidance, seven scores are plotted within the low anxiety/avoidance area, and the remaining eight scores are located within the moderate anxiety/avoidance area. Generally, most of the higher scores on anxiety and avoidance relate to attachments to the mother or father.

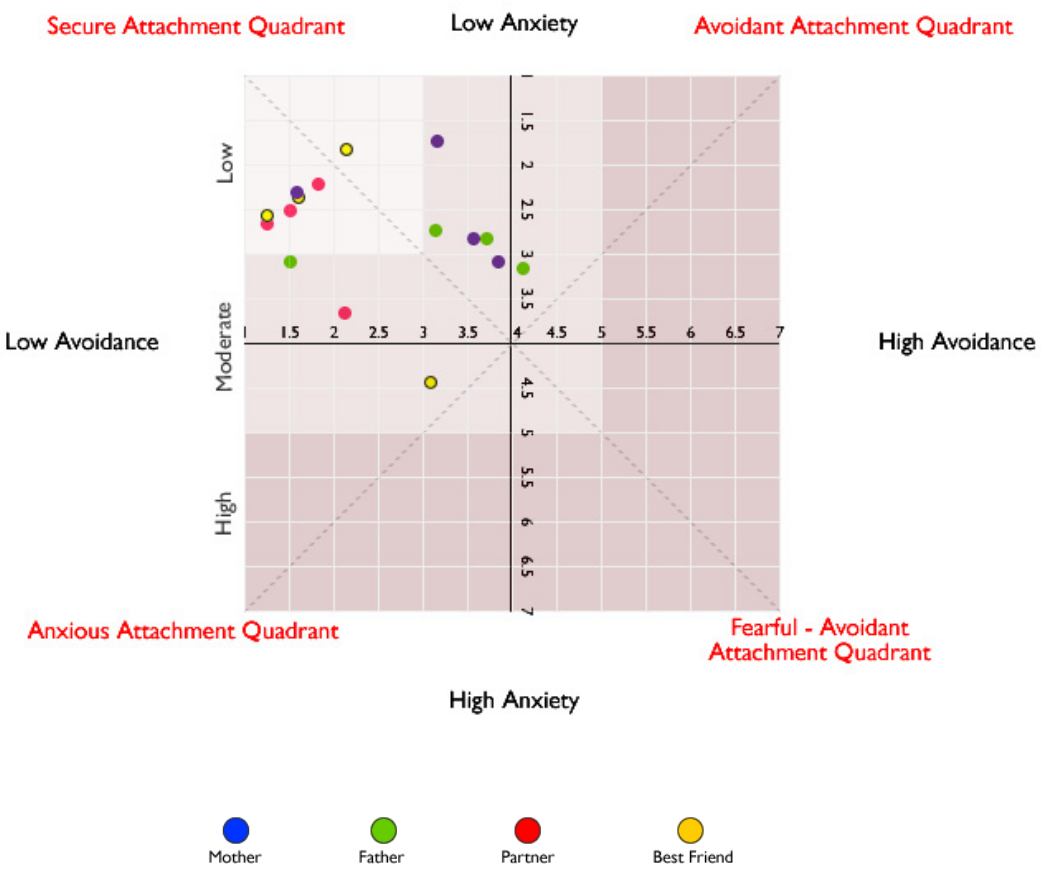

Figure 14. Attachment dimensions to the mother, father, partner, and best friend for self-reported physically aggressive females (n=4).

Attachment Dimensions for Self-Reported Verbally Aggressive Females

Four female participants scored very highly on verbal aggression but only three completed the ECR-R attachment scale (due to withdrawal). The remaining three participants' average attachment scores are presented in Table 34.

Table 34.

Attachment Scores on Anxiety and Avoidance for the Mother, Father, Partner, and Best Friend for Females Scoring Very High on Verbal Aggression.

	Attachment Anxiety				Attachment Avoidance			
Participant	Mother	Father	Partner	Best Friend	Mother	Father	Partner	Best Friend
6	3.11	3.22	3.72	4.44	3.94	4.17	2.17	3.06
9+	--	--	--	--	--	--	--	--
10	3.17	3.39	6.50	2.72	1.78	6.61	3.06	2.22
11	3.94	4.00	3.72	5.06	5.11	5.67	3.39	3.94

+ Participant did not complete the ECR-R.

* 1= lowest attachment anxiety/avoidance and 7=highest attachment anxiety/avoidance scores.

Combined attachment scores are represented in Figure 15 that shows that there is a greater dispersion of scores for verbally aggressive females than for physically aggressive females, a pattern which mirrors the physical and verbal aggression scores for the male sample. Figure 15 indicates that almost all scores show moderate or high avoidance or anxiety. Only one score is located in the low attachment/avoidance category (to the best friend).

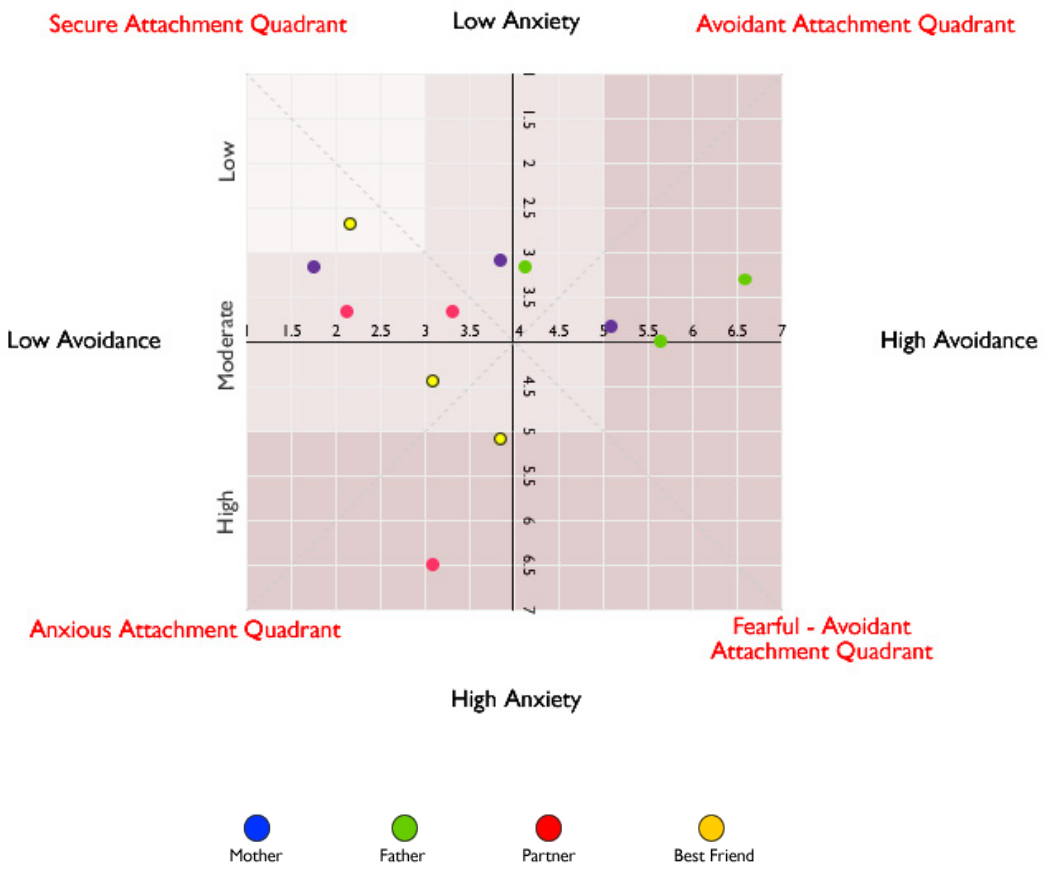

Figure 15. Attachment dimensions to the mother, father, partner, and best friend for self-reported verbally aggressive females (n=3/4 available for attachment dimensions).

Attachment Dimensions for Self-Reported Hostile Aggressive Females

Four female participants scored very highly on hostile aggression. The average attachment scores are presented in Table 35.

Table 35.

Attachment Scores on Anxiety and Avoidance for the Mother, Father, Partner, and Best Friend for Females Scoring Very High on Hostile Aggression.

	Attachment Anxiety				Attachment Avoidance			
Participant	Mother	Father	Partner	Best Friend	Mother	Father	Partner	Best Friend
6	3.11	3.22	3.72	4.44	3.94	4.17	2.17	3.06
15	6.06	3.06	5.22	4.11	6.44	2.06	4.00	3.72
16	3.11	5.17	5.78	4.61	3.33	6.39	5.44	3.56
17	1.33	1.33	5.22	3.61	5.33	4.33	3.17	1.72

* 1= lowest attachment anxiety/avoidance and 7=highest attachment anxiety/avoidance scores.

Participants' combined attachment scores are displayed in Figure 16 which presents scores that are at least moderate in attachment anxiety or avoidance. Attachment scores for hostile aggressive females are higher and more dispersed in the anxiety/avoidance spheres than those for both physically and verbally aggressive females.

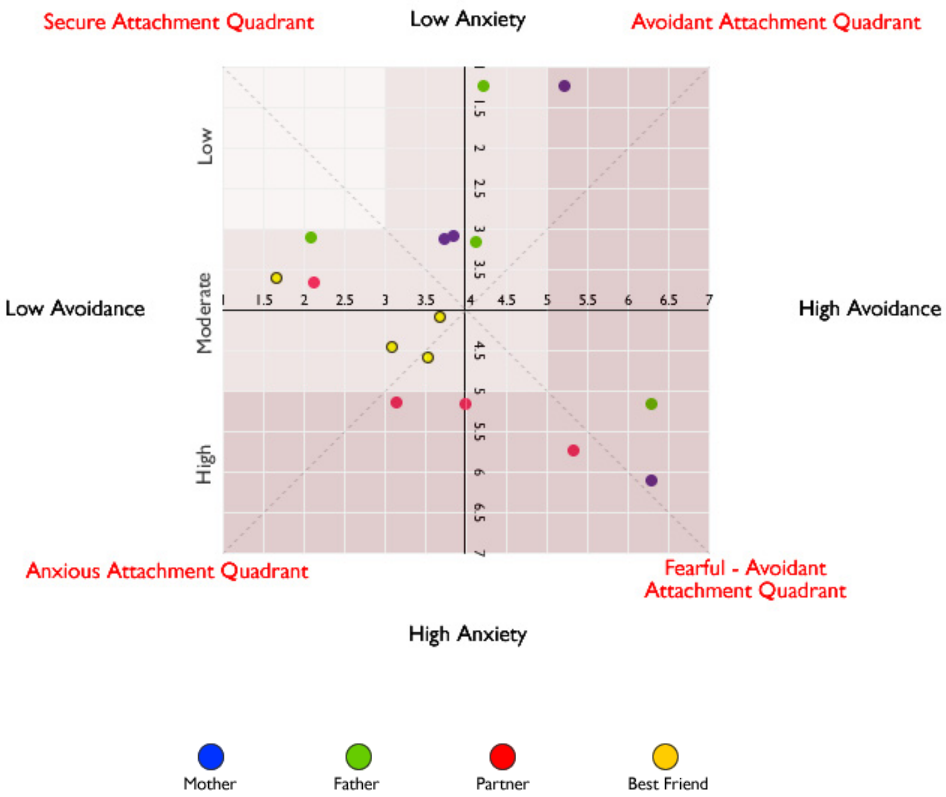

Figure 16. Attachment dimensions to the mother, father, partner, and best friend for self-reported hostile aggressive females (n=4).

Attachment Dimensions for Self-Reported Indirectly Aggressive Females

Three female participants scored very highly on indirect aggression. Their scores are presented in Table 36.

Table 36.

Attachment Scores on Anxiety and Avoidance for the Mother, Father, Partner, and Best Friend for Females Scoring Very High on Indirect Aggression.

	Attachment Anxiety				Attachment Avoidance			
Participant	Mother	Father	Partner	Best Friend	Mother	Father	Partner	Best Friend
6	3.11	3.22	3.72	4.44	3.94	4.17	2.17	3.06
16	3.11	5.17	5.78	4.61	3.33	6.39	5.44	3.56
18	1.39	3.22	4.89	2.89	2.39	5.00	1.83	4.50

* 1= lowest attachment anxiety/avoidance and 7=highest attachment anxiety/avoidance scores.

Figure 17 represents the combined attachment scores. As with females who scored very highly on hostile aggression, there are no attachment scores within the low anxiety/avoidance grouping for indirectly aggressive females. It is noticeable in this graph that attachment scores are higher for father, partner, and best friend than for the mother.

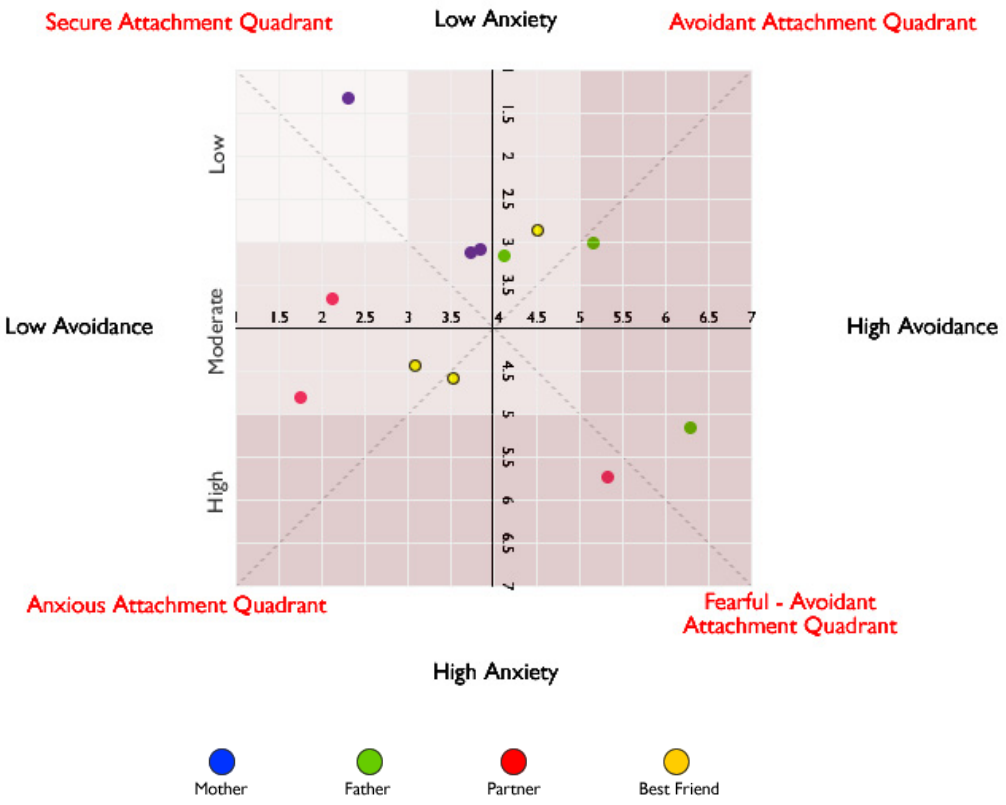

Figure 17. Attachment dimensions to the mother, father, partner, and best friend for self-reported indirectly aggressive females (n=3).

Discussion

The purpose of this study was to investigate the presence of attachment anxiety and attachment avoidance to the mother, father, partner, and best friend in males who had scored above a standardised score of $T \leq 70$ on hostile or indirect aggression (Buss & Warren, 2000), and females who had scored above a standardised score of $T \leq 70$ on physical, verbal, hostile, and indirect aggression (Buss & Warren, 2000).

The first hypothesis stated that males who scored very highly on self-reported covert (hostile and indirect) aggression would have higher scores in attachment anxiety and avoidance then in attachment security.

The graphs in Figures 14 and 15 present evidence to support hypothesis one. Attachment dimensions to the mother, father, partner, and best friend show moderate levels of insecurity in males who scored very highly in covert (hostile and indirect) aggression. These findings enhance the previous findings in this thesis that showed that generalised attachment anxiety was significantly related to covert aggression in males (Study Three). These findings are also supported by Mikulincer (1998) who examined the relationship between attachment anxiety and hostile attribution (Crick & Dodge,1994).

The second hypothesis stated that females who scored very highly on self-reported covert (hostile and indirect) and overt (physical and verbal) aggression, would have higher scores in attachment avoidance and attachment anxiety than in attachment security (see Figures 16 – 19).

When attachment style is considered categorically, physically aggressive females seem to show mainly secure attachments as all but two scores fall within the secure quadrant. However, when the scores are considered two-dimensionally, they are in fact mostly moderate in avoidance or anxiety. Attachment scores to the father and

mother most notably represent attachment anxiety and avoidance in physically aggressive females, with one score showing moderate anxiety to the best friend.

The attachment dimensions for female verbal aggression clearly indicate that all scores to the mother, father, partner, and best friend, except for one, show either moderate or high anxiety or avoidance. Only one score, that relating to best friend attachment, could be considered to indicate secure attachment using both the two-dimensional and categorical approach. The highest, and most common, scores for anxiety or avoidance were paternal attachment, although the other three relationships were also represented in these categories.

The two-dimensional attachment scores in females who are very covertly aggressive provide strong evidence to support the hypothesis that attachment dimensions to the mother, father, partner, and best friend would show mainly insecure attachment scores in females who scored very highly in hostile and indirect aggression.

The attachment dimensions for female hostile aggression show either moderate or high levels of anxiety or avoidance, with three scores showing high anxiety and avoidance together. The most common insecure scores were scores to the partner. However, there was one high score to the mother and one high score to the father in anxiety or avoidance.

The attachment dimensions for female indirect aggression show attachment scores (with the one exception of that to the mother) indicate a moderate or high degree of attachment anxiety or avoidance. In fact, two scores show high levels of both attachment anxiety and avoidance, indicative of a fearful attachment style.

Overall, the results from this study indicate that insecure attachments to both parents and to peers are present in both males and females who self-report experiences of aggression. Insecure attachments are most present in individuals who self-report

experiences of covert, that is, hostile and indirect aggression. The findings are compatible with previous findings in this thesis and are supported by past theory and research that has highlighted links between aggression and both anxious and avoidant attachment (Bowlby, 1973, 1980, 1982/1969 Mayseless, 1991). Many other studies identify a link between attachment anxiety and avoidance with 'violence', (e.g. Lafontaine & Lussier, 2005; Levinson & Fonagy, 2004), which is, according to Anderson and Bushman (2002, p. 29), "aggression that has extreme harm as its goal (e.g. death)" (See Chapter 1).

The findings also partially support Noom et al. (1999) who looked at problem behaviour and parental and peer attachment and found that father secure attachment was a protective factor for problem behaviour. However, Noom et al. also found that insecurity to the mother and security to the peers were related to problem behaviour. Furthermore, Noom et al. did not explore aggression specifically -- they explored 'problem behaviours'-- and therefore direct comparisons between these studies cannot effectively be made. Gomez and McLaren (2007), however, did explore aggression specifically using a general attachment measure. They found that maternal and paternal secure attachment was related negatively to aggression but, again, attachment was not separated into components of anxiety or avoidance and therefore direct comparisons between their research and the present research are not straightforward.

The findings on attachment avoidance and aggression in this study are interesting because generalised attachment avoidance did not remain significant in the statistical analyses in Study One after attachment anxiety was taken into account. It is possible that this difference between these studies is explained by the use very high aggression scores in this study, while Study One explored attachment avoidance and anxiety using the whole spread of aggression scores in the sample collected. An

additional finding in this study in the case profiles was that those participants scoring high in self-reported aggression showed a reasonably high prevalence of attachment avoidance scores (either as attachment avoidance itself or as a component of fearful attachment). This finding, alongside the finding in the previous studies that attachment anxiety was more prevalent in non-violent non-offenders, suggests that the more aggressive an individual is, the more characteristics of avoidant attachment are present in an individual.

Most interestingly, the findings from this current study highlight the importance of assessing attachment on an individual level in those people who experience high levels of self-reported aggression. As noted above, it is not easy to compare the findings from this study with previous research because the previous research is neither identical in measurement and methods, nor in assessed outcomes. Notwithstanding what the results of such a comparison might be, the findings in this current study are useful as they undoubtedly highlight the importance of the relationships between paternal attachment avoidance and aggression. An evaluation of this study from an applied perspective needs to take into account that the study used measures of self-reported aggression. In order to extend the conclusions to actual physical violence that has occurred, it would be critical to conduct this research with violent offenders. Therefore, using a young offender sample to extend this current research may have practical utility. The concluding study in this thesis will examine the relationship between insecure attachment and anger and aggression in both violent young offenders and non-violent non-offenders.

CHAPTER TEN

STUDY FIVE – INSECURE ATTACHMENT, ANGER, AND AGGRESSION IN MALE VIOLENT OFFENDERS AND NON-OFFENDERS

Introduction

Overall, the findings reported so far highlight the significance of generalised attachment anxiety (Studies One, Two, and Three) and relationship-specific attachment anxiety and avoidance to the mother, father, partner, and best friend (Study Four) in dysfunctional anger, as defined by Novaco (1994; 2003), and self-reported aggression, as described by Buss and Warren (2000). The findings in Studies Two and Three indicate that anger can mediate the relationship between generalised attachment anxiety, anger, and aggression. These findings (Studies Two and Three) suggest that generalised attachment anxiety may increase the probability of dysfunctional anger experience that then in turn may increase the probability of aggression. Conversely, it may follow that secure attachments will have a protective influence upon dysfunctional anger, a proposal tentatively supported by experimental research that showed priming secure attachments can increase measures of altruism in a non-offending university based sample (Mikulincer et al., 2005). Furthermore, more research has found that it is possible to reduce negative emotions, like anger, to hurtful events in insecurely-attached participants through priming methods (Cassidy, Shaver, Mikulincer, & Lavy, 2009).

It was suggested in the discussion in Study Two that the lack of a significant relationship between generalised attachment anxiety and overt aggression in males was likely to be due to the demographic characteristics of the university sample (for example, high IQ based on A level scores to enter psychology or medicine at university level). It is well documented that low social economic status and low intelligence are

related to offending as well as to insecure attachment and parental disruptions within the family (Farrington, 1995; 2000). Indeed, the importance of positive social contexts in the early years is highlighted by recent longitudinal research by Murray et al., (2008a; 2008b; under review) indicating that female adult criminal convictions were predicted by single, teenage motherhood, and family deprivation, (defined as a crowded household, low social class, low parental education, and a poor household). For males, adult convictions were predicted by a single and teenage mother, family deprivation, maternal depression, and parental loss (Murray et al.). Difficult social contexts like these described by Murray et al. are likely to disrupt attachment relationships and such disruptions may have an influence on offending. Therefore, attachment problems, anger, and aggression may be under-represented in the sample used in Studies One to Four because the sample used was from a university population.

Previous findings indicated that there are gender differences in the way in which attachment anxiety or avoidance relate to self-reported aggression (e.g. Arias et al., 1987; Baumeister & Sommer, 1997; Beckner, 2005; Campbell & Muncer, 1987). Thus, generalised attachment anxiety was found to have a greater influence on covert aggression in males than in females and on overt aggression in females than in males. However, what the previous studies cannot do is to comment on whether these findings are applicable to individuals who have actually committed violent offences. With public concerns about violence in the community (Krug, et al., 2002; 2008), and with reports that between 85 and 95 per cent of criminally violent offenders are male (Office for National Statistics, 2006), it may be of practical importance to examine whether the earlier findings are pertinent to males who have committed violent offences. If these earlier findings are replicated in offenders, tentative practical suggestions for the management or treatment of violent offenders could be proposed. Such findings may

also have implications in relation to the prediction of offending and primary prevention polices and practices.

The relationship between attachment and youth offending has been examined since Bowlby's study of 'affectionless psychopathy' in delinquent males (Bowlby, 1944; see Dixon, 2003, for a review). Violent offending has been explored from an attachment perspective mainly in terms of sexual violence (such as rape), or in terms of physical or psychological violence towards a sexual partner or other member of the family (e.g. Lafontaine & Lussier, 2005). Various studies have explored the relationship between attachment and delinquency (e.g. Bowlby, 1944; Elgar, Knight, Worrall, & Sherman, 2003; McElhaney, Immele, Smith, & Allen, 2006**),** personality disorders (Fonagy, 2000; Fonagy, Target, Gergley. Allen, & Bateman, 2003), sexual violence (e.g. Smallbone & Dadds, 1998, see Chapter One), and violence to a sexual partner (Lafontaine & Lussier, 2005). However, there is much less research focusing on attachment and non-sexual violence to strangers or acquaintances.

The few studies that have examined attachment style and delinquency (Butler, et al. 2007; Wampler & Downs, 2009) or attachment style and (some) non-sexual violence (Levinson & Fonagy, 2004; Ross & Pfäfflin 2004) have demonstrated a prevalence of an insecure attachment style to parents and/or peers in delinquent and/or violent individuals.

Butler et al. (2007) and Wampler and Downs (2009) both examined attachment style to parents and peers in juvenile offenders (Butler et al.) or juveniles who had been identified as high risk by the juvenile justice system and were either offenders or at risk of offending (Wampler & Downs). Although attachment style was measured differently from the standard categories of secure, anxious, avoidant, fearful-avoidant, the results

indicated that the participants experienced avoidant attachment (e.g. isolation and alienation from parents).

Butler et al. (2007) assessed attachment to parents and peers in juvenile offenders who met the DSM criteria for Conduct Disorder. Amongst other factors, the researchers found that a high degree of alienation from parents was associated with both delinquent and aggressive behaviour. The researchers also found that lower levels of secure attachment to parents were linked to delinquent behavior in circumstances of high contextual risk (from the Youthful Level of Service Inventory, Shields & Simourd 1991). Butler et al., also reported that high trust and communication and a low sense of alienation to an attachment figure were found to be protective factors against delinquent and aggressive behaviour, even in circumstances considered to be high risk (e.g. a dangerous neighbourhood).

Wampler and Downs (2009) also found a link between insecure attachments to parents and peers and delinquency. They also found that there were some differences between parents and peers in the type of insecure attachment (assessed by the IPPA, Armsden & Greenberg (1987), see Chapter Four). Notably, there was an association between high levels of isolation from the parents and peers in terms of attachment and delinquency.

Levinson and Fonagy (2004) examined a group of male violent offenders and compared their attachment styles to control groups. They found that dismissing (avoidant) or 'unresolved' (fearful) types were more prevalent in adult offenders than in non-offenders, whilst anxious attachment was equally prevalent in offenders and controls. However, all participants had been diagnosed with a personality disorder and some of the violent sample had committed a sexually violent act as their index offence. Although Levinson and Fonagy did not use violent offenders exclusively (offenders had

also been convicted of offences like drink driving, theft, deception, drug supply and importation), over one-half of the sample had been convicted of a violent offence ranging from assault to murder. The researchers focused on adult offenders with a mean age of 28.9 years. They did not assess young offenders who were serving community sentences and therefore their study could not comment on the relationship between attachment and violent offending in juveniles. The study by Levinson and Fonagy did not explore anger or self-reported aggression scores in conjunction with generalised and relationship-specific attachment and therefore was not able to comment on how a more general approach to attachment may relate to violent offending.

Similarly, Van Ijzendoorn et al. (1997) found that the majority (75%) of the sample of institutionalised offenders were classified as either avoidant or 'cannot classify'. Van Ijzendoorn et al. indicated that the classification of avoidant or 'cannot classify' was notably lower in comparable samples (a low SES sample and a nonclinical adult sample) classified in the same attachment groups. However, the sample used in this study was not only violent offenders: approximately half of the sample were violent non-sexual offenders and the other half of the sample were sexual offenders.

Ross and Pfäfflin (2004) explored differences in attachment styles in incarcerated male violent offenders and non-offenders. They found that attachment styles differed significantly between these two groups. Similarly to Levinson and Fonagy (2004), Ross and Pfäfflin (2004) showed that violent offenders were less emotionally attached to others, were more socially isolated, had more relationship instability, and had a stronger desire for interpersonal autonomy than the non-offenders.

However, Ross and Pfäfflin measured attachment using the Adult Attachment Prototype Rating (Straub & Lobo-Drost, 1999), a semi-structured interview including a self-report rating scale. As with the research by Van IJzendoorn et al., (1997), the

outcomes from this assessment are difficult to compare with standard measures of attachment (secure, anxious, avoidant, fearful-avoidant). Ross and Pfäfflin explain how the attachment prototypes would compare with the more commonly understood attachment styles, and, based on this comparison, violent offenders were found to have similar levels of attachment avoidance and attachment anxiety. However, the researchers admitted that the time-consuming nature of the assessment may have led to a positive bias in secure attachments, thereby under-representing the degree of avoidant and anxious attachment styles seen in the sample. This study also included sex offenders, and so this violent sample was not totally non-sexually violent (in terms of index offence). As the mean age of the participants was 36.1 years, this study was not able to comment on attachment in terms of non-sexually violent young offenders. Ross and Pfäfflin also did not explore self-reported aggression scores as well as generalised and relationship-specific attachment.

The findings from Ross and Pfäfflin's (2004) study into types of insecure attachment was most commonly found in violent offenders are unclear because of the problems of re-categorising styles, and, like the Levinson and Fonagy (2004) and the Van Ijzendoorn et al., (1997) studies, sexually violent offenders were assessed as well as non-sexually violent offenders. None of these studies examined attachment using questionnaires alone and therefore attachment style-specific associations are hard to predict on the basis of these two studies. Some studies suggest that attachment avoidance (or fearful avoidance, which incorporates a strong aspect of avoidant attachment) may be somewhat more prevalent than other styles of attachment in delinquent or pre-dominantly violent offenders (Levinson & Fonagy, Van IJzendoorn et al., 1997) and the other shows an equal distribution of attachment anxiety and avoidance (Ross & Pfäfflin). Moreover, the latter study used measures that seem difficult to align

conceptually with attachment anxiety and avoidance as they are understood by the definitions in this thesis (Butler et al., 2007; Ross & Pfäfflin; Wampler & Downs, 2009).

According to Bowlby's thesis (1982/1969), anxious attachment is seen theoretically to be the first prototypical response when attachment-related arousal (a need to be emotionally close to another person) is not regulated. This is because the prototypical response to separation is intensified proximity-seeking and protest, and proximity-seeking is the key behavioural characteristic of attachment anxiety. When proximity-seeking ceases because attachment figure availability is not viable (Mikulincer & Shaver, 2003), a process of detachment occurs. It is possible that this process bears similar characteristics to avoidant attachment until full detachment (from the significant other, and as defined by Bowlby) has occurred. As noted in Chapter Three, secure attachment might therefore be described as the adaptive response, anxious attachment as the prototypical secondary response, and avoidant attachment (or fearful-avoidance) as the final secondary response because it is the closest response to maladaptive attachment system deactivation, despair, and detachment.

Based on the above-mentioned process and on previous research linking avoidant attachment in violent offenders (e.g. Levinson & Fonagy, 2004; Van IJzendoorn et al., 1997), and traits conceptually similar to avoidant attachment in juveniles (Butler et al., 2007; Wampler & Downs, 2009), it seems reasonable to hypothesise that violent offenders may have higher attachment avoidance scores than non-offenders.

Hypotheses

Hypothesis One

Research shows that young people who have been involved with the justice system have more attachment disruptions in the family than non-offenders (e.g. Bowlby, 1982/1969; Butler et al., 2007; Van IJzendoorn et al., 1997; Wampler & Downs, 2009).

Therefore, it is predicted that the young male violent offenders in this study will have more physical attachment disruptions than non-offenders.

Hypothesis Two

In view of the findings of Levinson and Fonagy (2004) and the theoretical arguments discussed above it is argued that deactivation of the attachment system may be a last resort strategy– and that attachment avoidance is a process of detachment. In this regard, attachment avoidance may therefore the secondary response to separation or neglect from the attachment figure after attachment anxiety. As young offenders are likely to have had more physical attachment disruptions in their lives than non-offenders (e.g. Bowlby, 1982/1969; Butler et al., 2007; Wampler & Downs, 2009), *it is predicted that there will be a greater number of significant relationships between attachment avoidance, anger, and aggression in violent offenders than in non-offenders.*

Hypothesis Three

Also in relation to the above research findings, it is additionally predicted that the prevalence of attachment avoidance in violent offenders who report the highest level of aggression will be higher than the prevalence of attachment anxiety in such offenders.

Method

Participants

Twenty-nine male violent offenders' data were used in this study. The mean age of the sample was 16.6 years (*SD*= 0.81). Four (13.8%) of the sample committed their index offence upon either a member of the family or a friend. The remaining 25 (86.2%) had reported that their offence was committed against a non-attachment figure.

Design

Two groups, 29 male violent offenders (convicted) and 29 male non-violent non-offenders (self-reported) were formed. Twenty-nine males were selected from the original data (n=109 males) collected on the non-offenders by SPSS-generated random sampling. It was not possible to match the two samples by age: when the youngest 29 non-offenders were selected as a comparison group, a t-test showed that there was a significant age difference between the offending and non-offending sample (t = -4.77, p>.05). Therefore, sample size was matched using random selection from all those participant scores that were consistent in the anger and aggression questionnaires which had no missing data on any of the variables. However, as five offenders scored inconsistently on the AQ, five non-offenders, who had also scored inconsistently on the AQ, were selected at random from the comparison group. After the sample was formed to match for equal numbers of inconsistencies, a subsequent 24 participants were randomly selected to join the remainder of this comparison group. The non-offender sample was matched in sample size to improve the comparative reliability between the two groups.

The latter part of this study was a case design. Attachment profiles were derived as in Study Four. Violent offenders who scored 2 standard deviations above the norm or greater on the aggression variables were included in this case study.

The administration of the three questionnaires was counterbalanced in an ABC/BCA/CAB format. Male offenders had to be serving either a community sentence or a community part of a custodial sentence for a serious violent offence in order to participate. These selection criteria were used because a conviction increases the likelihood that an offence has actually been committed.

Serious violent offence is defined in this study by a score of 3 or 4 (scores range from 1-4) using the Youth Offender Case Disposal Gravity Factor System (1998).

Male non-offenders reported that they had never been convicted of any violent offence, including less serious offences such as common assault or public disorder.

Materials

As with the previous studies, the ECR-R (Fraley et al., 2000) was used to assess generalised and specific attachment. Anger arousal, cognition, and behaviour were assessed using the NAS (Novaco, 1994; 2003). Physical, verbal, hostile, and indirect aggression were assessed from the AQ (Buss & Warren, 2000); generalised attachment anxiety, generalised attachment avoidance, and attachment anxiety and avoidance to the mother, father, partner, and best friend were assessed by the ECR-R (Fraley et. al., 2000).

T scores $\geq T70$ for all the aggression variables were used in order to examine the most (self-reported) aggressive participants and their scores on multiple attachments. These *T* scores were taken from Buss & Warren, (2000). $T \geq 60$ is equivalent to $SD \geq +1$ and $T \geq 70$ is equivalent to $SD \geq +2$ in a normal distribution (see Chapter Nine).

The minimum to maximum score for the total aggression score is 27-135, while the minimum-maximum score for NAS total is 48-144, for physical aggression is 8-40, for verbal aggression is 5-25 for hostile aggression is 8-40, for indirect aggression is 6-30, for anger arousal, cognition, and behaviour is 16-64,for generalised attachment is 36-252, and for relationship-specific attachment is 1-7.

Procedure

Participants completed their questionnaires in paper format, face-to-face with a trained youth offending team caseworker (see Chapter Five).

Results

The majority of the offenders had been convicted of actual bodily harm (n=8), robbery (n=6), and grievous bodily harm (n=5). The remaining offences were possession of a weapon and assault (n=4), wounding with intent (n=2), affray (n=1), burglary dwelling (n=1), criminal damage and possession of a weapon (n-1) and criminal damage and assault (n=1). Descriptive statistics for scores on anger and aggression by group are shown in Table 37. As extensive research has linked anger with violent offending (Novaco, 1994; Zamble & Quinsey, 1997), the descriptive statistics on anger are additionally included in Table 37 to show their relationship with violent offending.

Table 37.

Descriptive Statistics for Age, Types of Aggression, and Anger in Young Violent Offenders.

	Violent Male Offenders (n=29)		Non-Offending Males (n=29)	
	M	*SD*	*M*	*SD*
Age	16.7	0.8	21.1	4.9
Total Aggression	82.7	17.6	61.9	14.8
Physical Aggression	28.0	8.3	16.2	6.1
Verbal Aggression	17.4	3.9	13.4	4.1
Hostile Aggression	20.9	6.3	18.2	4.8
Indirect Aggression	16.5	4.2	14.1	5.0
NAS Total	104.1	11.3	88.9	12.4
Anger Arousal	33.28	4.6	29.8	5.2
Anger Cognition	34.4	3.5	31.0	3.5
Anger Behaviour	36.4	5.1	28.2	5.7

Table 38 below shows the descriptive statistics for each of the variables on age, generalised attachment, and relationship-specific attachment. The table shows that mean scores are higher (in 8/10 cases) for violent offenders for all attachment variables except for attachment anxiety to the best friend.

Table 38.

Descriptive Statistics for Age, Generalised Attachment, and Relationship-Specific Attachment Split by Group.

	Violent Male Offenders		Non Offending Males	
	M	*SD*	*M*	*SD*
Age	16.7	.81	21.1	4.9
GANX***	52.0	14.7	49.9	15.2
GAV	56.1	17.1	52.9	12.7
MANX	3.0	1.2	2.5	1.2
MAV	3.3	1.5	3.1	1.3
FANX	3.0	1.1	2.4	1.1
FAV	3.5	1.5	3.4	1.3
PANX	2.9	.89	3.5	1.1
PAV	3.0	1.1	2.6	0.87
BFANX	2.7	.84	2.7	1.1
BFAV	2.7	.89	2.6	1.1

Hypothesis One

Table 39 shows self-reported childhood parental upbringing for participants in both the violent offender and non-offender group. The table shows that the violent offender group had experienced the greater percentage of physical attachment disruption

(defined as not having been brought up by both biological parents). It was not possible to run a chi-squared test to test for the difference between offender and non-offenders in their attachment disruption because there were not enough participants in all the cells in the 2x2 contingency tables (n=5 is the minimum observed count required, Pallant, 2007). Therefore, the Fisher's Exact test for small samples was performed on the data, which confirmed a significant difference in attachment disruption between the violent offenders and non-violent offenders ($p > .001$, Fisher's Exact Test).

Table 39.

Childhood Upbringing and Attachment Disruption.

Upbringing Status	Violent Male Offenders (n=29)	Non-Offending Non-violent Males (n=29)
Physical attachment disruption	18 (62.1%)	3 (10.3%)
Both biological parents	11 (37.9%)	26 (89.7%)
Mother only	10 (34.5%)	2 (6.9%)
Father only	1 (3.4%)	0
Mother and step father	4 (13.8%)	0
Other relatives	1 (3.5%)	1 (3.4%)
Non-relatives/Carer	2 (6.9%)	0
Total	29	29

Hypothesis Two

Table 40 presents the non-parametric partial correlations between the attachment variables and the anger and aggression variables in the violent offender sample, holding age constant. The power of these correlations is low due to the small sample size (power = 0.50, Faul & Erdfelder, 1992). Low power (less than 0.80) increases the probability of a Type II error, meaning that some relationships, not seen to be significant might have been so if the sample has been larger (Cohen, 1977). Therefore, low power does not mean that those relationships found to be significant in the analysis at the $p<.05$ level are not significant (Dancy & Reidy, 2004), but low power due to low sample size does increase the probability of missing associations that would be classed as statistically significant. Indeed, Stevens (1996) states that if a sample size is small (i.e. n=20), the alpha level can be adjusted to compensate for small sample sizes. Stevens quotes using an alpha level of .10 or .15 as acceptable under these circumstances. However, in conditions where power is good and the sample size is large (power 0.80 or above, e.g. n=100, Stevens, 1996), it is often recommended to apply a Bonferroni adjustment if multiple tests are being conducted (Pallant, 2007).

The sample size used in this study is small and therefore has low power which, based on Stevens (1996), would require a more lenient alpha level of .10 or .15. However, multiple correlations are performed on the data. There are nine anger and aggression variables for each attachment variable, therefore the adjusted alpha level based on the Bonferroni correction would be 0.05/9 (0.005) (Pallant, 2007). Based on these two facts, the decision was made to set the alpha level at 0.05, which was considered to be a compromise between difficulties with low power and sample size (Stevens, 1996), and problems with multiple tests (Pallant).

The significant correlations in Table 40 reveal five key patterns of relationship defined by significance at the 0.05 level. Anger arousal and hostile aggression are the most frequently significant associated variables across attachment styles. The specific types of attachment most related to the anger and aggression variables overall were generalised attachment avoidance, avoidance to the mother, and avoidance to the father. Notably, physical and verbal aggression were related mainly to attachment avoidance and not to attachment anxiety.

Table 40.

Partial Spearman's Rho Correlations between the Attachment Variables and the Anger and Attachment Variables, Controlling for Age: Violent Offender Sample.

	Male Violent Offenders n=29									
	GANX	GAV	MANX	MAV	FANX	FAV	PANX	PAV	BANX	BAV
AA	.57***	.37*	.44*	.32*	.47**	.47**	.38*	-.16	.45***	.23
AC	.25	.33*	.25	.31*	.11	.31*	.28	.23	.26	.28
AB	.19	.45***	.18	.47**	.19	.43**	.11	.17	.03	.10
PHY	.04	.33*	.08	.38*	.03	.34*	-.08	-.02	-.10	-.05
VER	.15	.43**	.32*	.55***	.04	.33*	.10	.11	.04	-.09
HOS	.41*	.44**	.53**	.52**	.22	.40*	.43**	.09	.41*	.18
IND	-.10	.23	-.03	.27	-.09	.29	.01	-.15	-.15	.01

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 41 presents the correlations for the non-offender sample between the attachment variables and the anger and aggression variables. There are noticeably

fewer correlations between the 29 male non-offenders and the attachment, anger, and aggression variables and those correlations presented in Table 40. Hostility is related to generalised attachment anxiety, and to both anxious and avoidant attachment to the best friend. Reduced ability to regulate anger is related to attachment avoidance to the mother.

Table 41.

Partial Spearman's Rho Correlations for Age, Attachment, Anger, and Aggression Controlling for Age: Non-Offender Sample (n=29).

Male Non-Violent Offenders n=29										
	GANX	GAV	MANX	MAV	FANX	FAV	PANX	PAV	BANX	BAV
AA	.14	.20	.13	.12	.13	.16	-.13	-.02	.20	.22
AC	.04	-.02	.08	-.05	.02	-.20	.04	-.06	-.01	.01
AB	.10	.08	.01	-.06	.10	.12	.11	.17	.11	.15
PHY	-.13	-.06	-.25	-.23	.02	.05	-.04	-.11	-.05	.07
VER	.07	-.12	.13	.12	-.15	-.16	.09	-.16	.16	-.15
HOS	.35*	.25	.18	.03	.20	.22	.27	.15	.55***	.40***
IND	-.06	-.13	-.21	-.22	.02	.04	.04	-.10	-.09	-.16

* $p < .05$, *** $p < .001$

The figures in Tables 41 and 42 show the significant correlations between the attachment, anger, and aggression variables in both samples. Table 42 below gives z_{obs} values that show statistically significant differences between the two groups for the

correlation coefficients. The difference is statistically significant if $z_{obs} \leq -1.96$ or ≥ 1.96 (see Pallant, 2007, p.140).

Table 42.

Correlation Coefficient Differences Between Scores on Attachment, Anger, and Aggression for Violent Offenders and Non-Offenders.

	GANX	GAV	MANX	MAV	FANX	FAV	PANX	PAV	BANX	BAV
AA	1.83	.067	1.23	0.76	1.37	1.26	1.98*	0.51	1.01	0.04
AC	0.78	1.31	0.63	1.34	0.32	1.89	0.89	1.06	0.25	1.08
AB	0.33	1.46	0.62	2.06*	0.33	1.22	0	0	0.28	0.18
PHY	0.33	1.45	1.21	2.29*	0.04	1.09	0.14	0.28	0.18	0.11
VER	.031	1.23	0.72	1.80	0.69	1.82	0.04	0.97	0.44	0.22
HOS	.029	0.78	1.47	1.43	0.08	0.72	0.53	0.22	0.68	0.88
IND	.006	1.31	0.18	1.77	0.40	0.93	0.11	0.06	0.87	0.62

The coefficients in Table 42 show that the strength of the relationships between both generalised and specific attachment and anger and aggression is significantly different in violent offenders and non-offenders, regardless of age, in three cases: maternal avoidant attachment with anger behaviour and physical aggression, and partner anxious attachment and anger arousal. These findings provide evidence that the strength of the relationship between maternal attachment avoidance, anger behaviour and physical aggression, and partner anxious attachment and problematic anger arousal is greater in violent offenders than in non-offending males.

Hypothesis Three

Table 43 presents the attachment scores for each assessed relationship for those participants who scored at least two standard deviations above the mean on one of the aggression variables (physical aggression and hostile aggression: 13.8% of the sample). Following the same method used in Study Four, degrees of attachment insecurity were defined by dimensions: 1-3 = low anxiety/avoidance, above 3-5 = moderate, above 5-7= high anxiety/avoidance.

Table 43.

Attachment Scores on Anxiety and Avoidance for the Mother, Father, Partner, and Best Friend for Male Violent Offenders Scoring Very Highly (SD≥2) on Physical and Hostile Aggression.

	Attachment Anxiety				Attachment Avoidance			
Participant	Mother	Father	Partner	Best Friend	Mother	Father	Partner	Best Friend
Physical Aggression								
5	2.39	3.44	3.67	2.83	4.22	5.78	5.78	3.78
8	3.50	3.67	3.33	3.33	3.33	3.33	3.17	3.17
26	4.83	2.56	3.28	2.67	6.22	3.67	2.94	3.06
Hostile Aggression								
20	3.33	3.11	3.33	3.33	5.78	4.89	5.56	5.33

* Scores are rounded to one decimal place in order to be represented in the two-dimensional graphs. None of these participants scored inconsistently on the AQ.

The data in Table 43 are represented diagrammatically in Figures 18 and 19. Figure 20 shows attachment scores for young offenders who scored highly in self-reported physical aggression. Although many of the three young offenders' scores are located in the secure quadrant, all these scores are in fact moderate in attachment anxiety and avoidance. Four scores (two scores to the mother) are located in either the fearful quadrant or in the avoidance attachment quadrant.

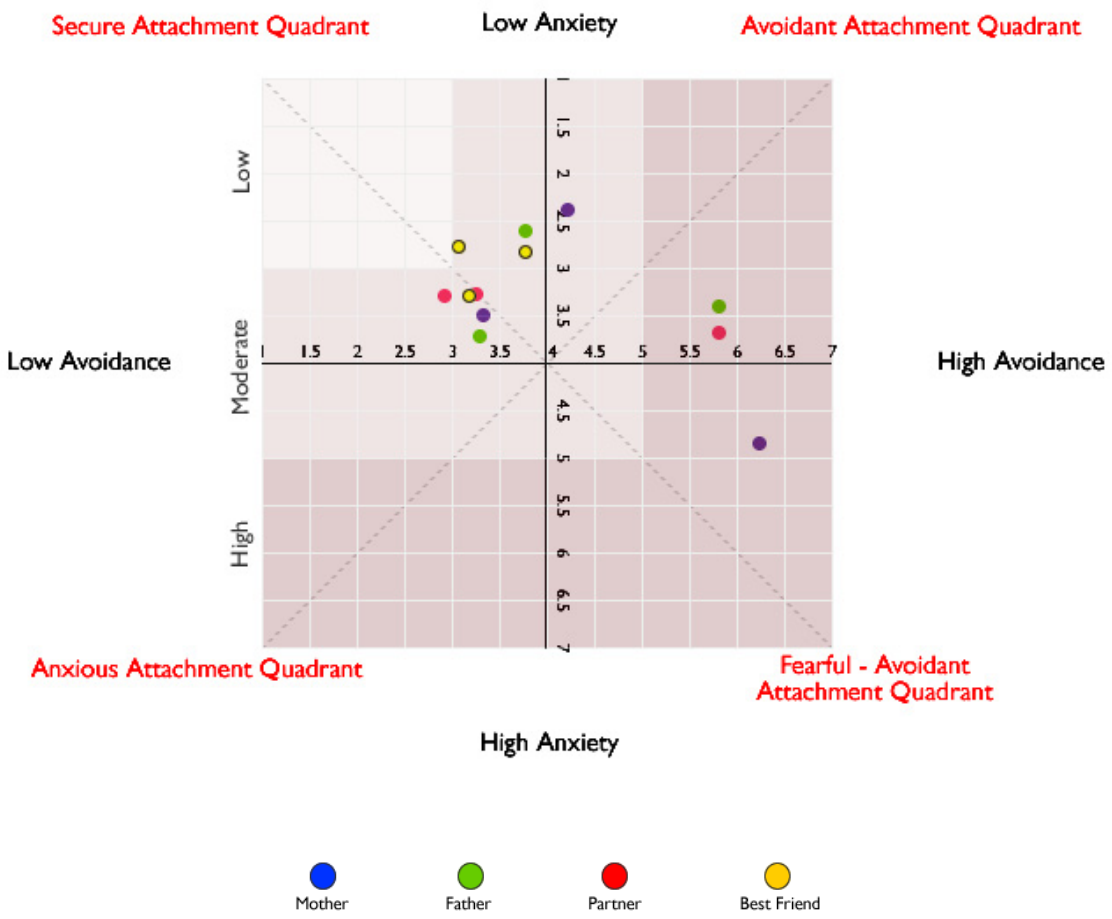

Figure 18. Attachment dimensions to the mother, father, partner, and best friend for male offenders for physical aggression (n=3).

Figure 19 shows the attachment scores for the one young offender who scored very highly on hostile aggression. All this participant's scores are located in the avoidance attachment quadrant.

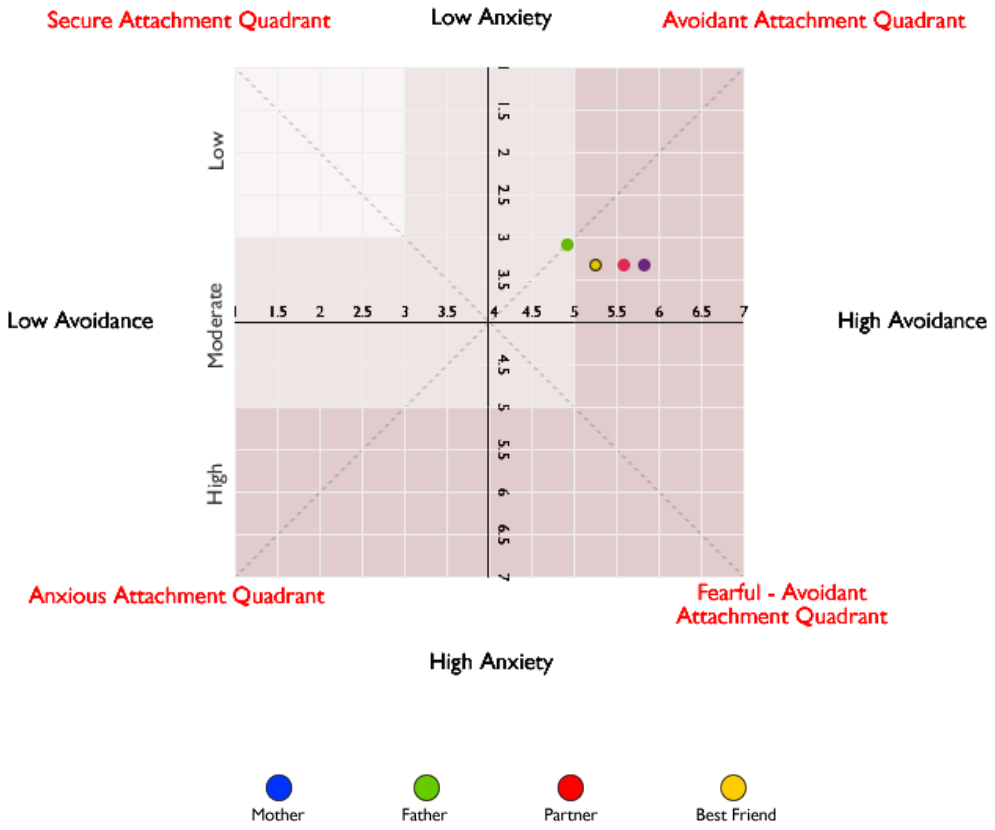

Figure 19. Attachment dimensions to the mother, father, partner, and best friend for male offenders for hostile aggression (n=1).

Discussion

This study examined the differences between violent offenders and self-reported non-violent non-offenders in terms of generalised and specific attachment, anger, and aggression. There were three hypotheses. The first proposed that violent offenders would report a greater frequency of physical attachment disruption in childhood than would non-offenders. This hypothesis was supported. The findings support the tenets of attachment theory (Bowlby, 1973; 1988) and are consistent with later empirical research (Butler et al., 2007; Levinson & Fonagy, 2004; Ross & Pfäfflin, 2004; Van IJzendoorn et al., 1997; Wampler & Downs, 2009).

The second and third hypotheses predicted that there would be a greater number of significant relationships between attachment avoidance, anger, and aggression in violent offenders than in non-offenders, and that the prevalence of attachment avoidance would be higher than attachment anxiety in violent offenders who reported the highest level of aggression. These hypotheses were partially supported. For violent offenders, anger arousal and hostile aggression were the most frequently associated significant variables associated across attachment styles. The specific types of attachment most related to the anger and aggression variables overall were generalised attachment avoidance, avoidance to the mother, and avoidance to the father. Notably, physical and verbal aggression were related mainly to attachment avoidance and not to attachment anxiety.

The pattern of relationships for the non-offenders was very different from that in the violent offender sample. Only three correlations were significant in the non-offender sample and these correlations were between generalised attachment anxiety and hostile aggression and attachment anxiety and avoidance to the best friend and hostile aggression. Therefore, hostile aggression was found to be significantly

associated with the attachment variables rather than any other form of aggression. The reason that there were so few correlations found in this study in comparison with the previous studies that examined attachment, anger, and aggression in non-offenders, is explained by the difference in sample sizes.

An assessment of significant differences between the groups revealed that violent offenders and non-offenders differ significantly in terms of the relationships between maternal attachment avoidance and anger behaviour and physical aggression, and between partner attachment anxiety and anger arousal. However, because the sample sizes were relatively small, (yet still similar in sample size to previous research, e.g. Levinson & Fonagy, 2004), it is possible that the significance tests (z_{obs}) missed some significant differences between correlation coefficients.

The third hypothesis predicted that the prevalence of attachment avoidance in violent offenders who reported the highest level of aggression would be higher than the prevalence of attachment anxiety in these offenders. The findings from the case studies showed support for the hypothesis for self-reported hostile aggression. However, although there were a greater number of higher scores for attachment avoidance than for anxiety in the self-reported physically aggressive participants, there was still a clear indication of moderate scores on attachment anxiety in these cases. Therefore, the third hypothesis was partially supported.

The findings lend some support to the hypothesis that avoidance is generally more common in violent offenders (Levinson & Fonagy, 2004) but, as discussed in the introduction to this chapter, the many differences between these studies make comparisons between them difficult. However, this study is able to extend Levinson and Fonagy's findings because attachment to the father, best friend, and partner, was also examined, while Levinson and Fonagy only focused on attachment to the mother. This

study develops Levinson and Fonagy and other studies by Ross and Pfäfflin (2004), Van IJzendoorn et al. (1997), and Wampler and Downs (2009), most notably in the context of a generalised attachment paradigm.

The differences between violent offenders and non-offenders in anger experience and self-reported aggression, are in keeping with previous research (Novaco, 1994; Novaco & Welsh, 1989; Howells, 2004). An important point arising from the findings of this study is that attachment avoidance, particularly to the parents, is more related to anger and aggression in violent offenders than it is in non-offenders. This finding implies that relationships and social interactions in an environment where the offender has to trust another person who may have a 'parental' type role (e.g. in a therapy session), may be impaired. The notion that attachment styles are resistant to change has been argued (Bowlby, 1960; 1973). However, it has been noted that resistance to change does not mean it is impossible to modify attachment style (Mikulincer & Shaver, 2003, 2007; Mikulincer et al., 2005).

This study has some limitations. The sample sizes of the two groups were small and therefore the data were reduced in statistical power, increasing the chance of a Type II error. Therefore, appropriate control was made to reduce any confounding effects by selecting an appropriate alpha level. Multiple correlations were performed on this sample and this process increases the chance of a Type I error. As Type I and II errors are inversely related, a mid-range alpha level was selected at 0.05 rather than at the more stringent Bonferroni-adjusted alpha and the more lenient alpha level recommended by Stevens (1996) for small samples. It should be noted, however, that the sample sizes reported in the research by Levinson and Fonagy (2004) and Ross and Pfäfflin (2004) was 22 and 31 respectively, thus indicating that smaller sample sizes are not unusual in applied research in forensic settings.

CHAPTER ELEVEN

SUMMARY OF FINDINGS

The purpose of this chapter is to summarise the hypotheses and findings. The findings are discussed in Chapter Twelve.

Summary of Hypotheses and Findings

There were seven research questions (Chapter 5, p. 91). Study One focused on the first research question: How does generalised attachment avoidance and anxiety (as described by Mikulincer & Shaver's model and by Fraley et al., 2006) relate to dysfunctional anger arousal, cognition, and behaviour (as described by Novaco, 1994) and general aggression (as described by Anderson & Bushman, 2002; Buss & Warren, 2000) in males and females?

Study Two focused on the second and third research questions: How does generalised attachment anxiety (Fraley et al., 2006; Mikulincer & Shaver, 2003) relate to dysfunctional anger arousal and cognition (Novaco, 1994) and overt aggression (Anderson & Bushman, 2002; Buss & Warren, 2000) in males and females, and to what extent does anger cognition and arousal (Novaco, 1994) mediate the relationship between generalised attachment anxiety and overt aggression (Buss & Warren, 2000)?

Study Three focused on the fourth and fifth research questions: How does generalised attachment anxiety (Fraley et al. 2006; Mikulincer & Shaver, 2003) relate to dysfunctional anger arousal and cognition (Novaco, 1994) and covert aggression (Anderson & Bushman, 2002; Buss & Warren, 2000) in males and females, and to what extent does anger cognition and arousal (Novaco, 1994) mediate the relationship between generalised attachment anxiety and covert aggression (Buss & Warren, 2000)?

Study Four focused on the sixth research question: How do relationship-specific patterns of attachment relate to self-reported overt and covert aggression?

The final research question was addressed in Study Five and asked: How do both generalised and specific attachment avoidance and anxiety (Mikulincer & Shaver, 2003) relate to dysfunctional anger arousal, cognition, and behaviour (Novaco, 1994) and aggression (Anderson & Bushman, 2002; Buss & Warren, 2000) in young male offenders?

Study One

Hypotheses

Study One investigated three hypotheses: that generalised attachment avoidance and generalised attachment anxiety would both be significantly associated with anger and aggression; that attachment anxiety would have a greater influence on anger and aggression than attachment avoidance; that the difference in strength of statistical relationship between generalised attachment anxiety and avoidance and anger and aggression would be greater for females than for males.

Findings

Study One reported the following key findings. First, generalised attachment anxiety was significantly correlated with anger and aggression in both males and females. Second, generalised attachment avoidance was significantly associated with anger and aggression in females but not in males, and third, significant gender differences were found between generalised attachment anxiety and generalised attachment avoidance in aggression but not in anger. Specifically, the strength of correlational relationship between generalised attachment anxiety and aggression and generalised attachment avoidance and aggression was greater in females than it was in

males. An associated finding was that age had an inverse relationship with anger and aggression in males but not in females. This finding indicates that youth is related to anger and aggression in males, but this relationship is not significant in females.

Study Two

Hypotheses

Study Two hypothesised that generalised attachment anxiety would predict levels of overt aggression in both males and females. In addition, this study hypothesised that both anger arousal and anger cognition would mediate the relationship between generalised attachment anxiety and overt aggression in both males and females.

Findings

The results showed that generalised attachment anxiety predicted overt aggression in females but not in males. Anger cognition and anger arousal were both significant mediators between generalised attachment anxiety and overt aggression in females – anger arousal was noticeably more powerful as a mediator than anger cognition. Anger mediation for males was not assessed because generalised attachment anxiety was not found to predict overt aggression directly.

Study Three

Hypotheses

Study Three hypothesised that generalised attachment anxiety would predict covert aggression in both males and females. This study also hypothesised that anger arousal and anger cognition would mediate the relationship between generalised attachment anxiety and covert aggression in both genders.

Findings

Generalised attachment anxiety was found to predict covert aggression in both genders. The results of the mediation analysis revealed that anger cognition significantly mediated the relationship between generalised attachment anxiety and covert aggression in both genders, but anger arousal was only a significant mediator for the female sample.

Study Four

Hypotheses

It was predicted that males who scored very highly on self-reported covert (hostile and indirect) aggression would have higher scores in attachment anxiety and avoidance than in attachment security. It was also predicted in Study Four that females who scored very highly on self-reported covert (hostile and indirect) and overt (physical and verbal) aggression, would have higher scores in attachment avoidance and attachment anxiety than in attachment security.

Findings

Scores on insecure attachment were common amongst a sub-sample of participants who scored very highly on covert and overt aggression. The exception was predicted – that the scores for male insecure attachment would not be as prevalent in overt aggression as they would be in covert aggression. This study specified that it was parental insecurity, particularly paternal attachment insecurity, which was apparent in female physical aggression. Paternal attachment insecurity was also most prevalent in female verbal aggression. Insecure attachment scores were generally more balanced for covert aggression. There was very little evidence of maternal insecure attachment co-relating with male physical or verbal aggression. Additionally, the results indicated that

those male and female participants scoring high in self-reported aggression showed a reasonably high frequency, given the sample, of attachment avoidance scores (either as attachment avoidance itself or as a component of fearful attachment).

Study Five

Hypotheses

The hypotheses in Study Five predicted that the young male violent offenders in this study would have more physical attachment disruptions than non-offenders. It was also predicted that there would be a greater number of significant relationships between attachment avoidance, anger, and aggression in violent offenders than in non-offenders and that the prevalence of attachment avoidance in violent offenders who reported the highest level of aggression would be higher than the prevalence of attachment anxiety in such offenders.

Findings

Study Five showed that physical attachment disruption was greater in the violent offender sample than in the non-offender sample. It was also found that there were a greater number of significant relationships between attachment avoidance, anger, and aggression in violent offenders than in non-offenders and that the prevalence of attachment avoidance in violent offenders who reported the highest level of aggression would be higher than the prevalence of attachment anxiety. The key findings from this study were that generalised attachment avoidance, attachment avoidance to the mother and attachment avoidance to the father were those attachment relationships most related to anger and aggression. Further, physical and verbal aggression were related mainly to attachment avoidance and not to attachment anxiety.

CHAPTER TWELVE

DISCUSSION AND CONCLUSIONS

This chapter is divided into four sections. The first section describes the findings reported in this thesis in the context of previous literature. The second section provides a critique of the strengths and limitations of the methodologies used in this thesis. Section three provides the findings in the context of theory and practice, and section four introduces future research directions.

Section One – The Findings and Previous Research

Study One

There were four sets of findings presented in Study One. The first set of findings showed that generalised attachment anxiety was significantly correlated with anger and aggression in both males and females. The second set of findings showed that generalised attachment avoidance was significantly associated with anger and aggression in females but not in males. The third set of findings showed that significant gender differences were found between generalised attachment anxiety and generalised attachment avoidance in aggression but not in anger. Finally, the strength of correlational relationship between generalised attachment anxiety and aggression and generalised attachment avoidance and aggression was greater in females than it was in males. An associated finding was that age was negatively related to anger and aggression in males but not in females.

Overall, the findings reported in Study One support earlier literature asserting that attachment anxiety is related to problematic anger (Bowlby, 1973; Mikulincer, 1998). The findings also support previous research on gender differences in attachment and aggression, in that attachment theory was more powerful at explaining female

aggression than male aggression, suggesting that for females, aggression has a more salient relational component (Beckner, 2005; Campbell & Muncer, 1987). However, the finding that generalised attachment avoidance was not related to anger or aggression in males was not predicted nor was this finding supported by Mikulincer (1998). However, it should be noted that Mikulincer's study examined romantic attachment, not generalised attachment, and found that attachment avoidance (in both genders) was related to anger arousal by measuring heart rate changes. It is possible that males are less influenced by attachment relationships in the context of anger and aggression (e.g. Baumeister & Sommer, 1997); alternatively it is possible that attachment anxiety is the style of attachment that most influences male aggression and anger rather than attachment avoidance. However, based on the findings revealed in Study Five, it is likely that generalised attachment avoidance is in fact relevant in male anger and aggression, but perhaps more so in individuals who have behaved violently rather than in males in this study who reported to have never been convicted of a violent offence.

Studies Two and Three

The findings in Study Two indicated that generalised attachment anxiety predicted overt aggression in females but not in males. Anger cognition and anger arousal were both significant mediators between generalised attachment anxiety and overt aggression in females. In addition, anger arousal was noticeably more powerful as a mediator than was anger cognition. These findings may suggest that females' experiences of anger are more heavily influenced by attachment relationships than males' experiences of anger.

Unlike the findings in Study Two, the findings in Study Three indicated that generalised attachment anxiety was related to covert aggression in both females and males. The mediation analysis revealed that anger cognition significantly mediated the

relationship between generalised attachment anxiety and covert aggression in both genders, but anger arousal was only a significant mediator in the female sample.

The findings from this third study clarify the association between attachment theory, anger, and aggression in males. These results indicate that generalised attachment anxiety is related to covert aggression in males, rather than to overt aggression. In addition, the results show that anger cognition significantly mediates males' generalised attachment anxiety and their covert aggression. The findings also show that both types of anger, arousal and cognition, are significant mediators between generalised attachment and covert aggression in females. This latter finding may suggest that more facets of anger are involved in the relationship between attachment and aggression in females (both arousal and cognition) and fewer facets of anger are involved in the relationship between attachment and aggression in males (according to Novaco's 1994 conceptualisation of anger).

Previous research does not specifically focus on covert and overt aggression separately in the context of attachment and anger, and no research examines these relationships using a generalised attachment paradigm, but nevertheless the findings in this study, in general, are supported by the core tenets of attachment theory if aggression is considered to be either covert or overt (Bowlby, 1973; 1988). As noted in Chapter Five, studies have found that female aggression has a stronger relational component than male aggression: that is, females are more motivated than males to be aggressive in the theoretical context of attachment (Arias et al.,1987; Baumeister & Sommer, 1997; Beckner, 2005; Campbell & Muncer, 1987; Magdol et al., 1997). In the context of the findings of Study Three, it is therefore possible to hypothesise that anger may assist the difference between the genders in terms of the relationship between attachment and aggression because both arousal and cognitive components of anger

relate to covert aggression in females, while only cognitive factors of anger were found to apply in males.

Importantly, the overall findings from Studies Two and Three do not indicate that attachment theory does not explain the phenomena of male aggression. The findings simply suggest that there are differences in the way in which attachment theory influences both anger and aggression in males and females.

Study Four

Study Four comprised a case study of a selection of overtly or covertly aggressive male and female participants and their attachment styles to the mother, father, partner, and best friend were examined. The findings showed that scores on insecure attachment (that is, anxious, avoidant, and fearful) were frequently identified amongst this sub-sample.

The scores for male insecure attachment were not as prevalent in overt aggression as they were in covert aggression. The results from Study Four also indicated that it was parental attachment insecurity that was most notable in female physical aggression. In particular, paternal attachment insecurity was most prevalent in female verbal aggression.

The findings support research and theory linking both attachment anxiety and attachment avoidance with aggression (e.g. Bowlby, 1973, 1988; Mayseless, 1991). The findings suggest that attachment theory is better at explaining more covert types of aggression across genders and also highlight the importance of parental attachment, an association supported by Bowlby's original thesis (1982/1969; 1973; 1988). Specifically paternal attachment insecurity in female aggression was identified as important in this research.

In contrast to research on maternal attachment, there is not a dedicated literature that examines insecure paternal attachment and anger and aggression in females. A specific focus and finding on the relationships between paternal attachment and aggression in females in adolescence or young adulthood has been surprisingly under-investigated.

Study Five

The findings showed that physical attachment disruption was higher in the violent offender sample than in the non-offender sample. This finding supports Bowlby (1944; 1982/1969). Another interesting finding was that attachment avoidance was more frequently associated with anger and aggression than attachment anxiety in violent offenders than with non-offenders. However, because of the low sample sizes, there were only three significant differences in relationships between the groups. There were significant differences between violent offenders and non-offenders in terms of the associations between maternal attachment avoidance and anger behaviour, maternal attachment avoidance and physical aggression, and partner attachment anxiety and anger arousal. Case profiles of male offenders showed that attachment avoidance was more prevalent than attachment anxiety in male offenders who scored very highly on self-reported physical and hostile aggression.

It is noted that there is an age difference between the non-offender and the violent offender sample used in the present study. It is generally accepted that the risk of delinquency (or criminal activity) rises during adolescence, peaks in the mid to late teens, and then falls in early adulthood (McGuire, 2004; Moffitt, 1993). Therefore, differences in age between groups would be a possible confounding variable in any analyses. Of the three hypotheses tested in Study Five, two stated that there would be differences between the non-offending and violent offending group (Hypothesis One

and Two, Hypothesis Three was only concerned with the violent offender sample and so no comparison was made). Hypothesis One predicted that the male offender sample would report more physical attachment disruption than the non-offending sample of males. A Fisher's exact test was used to assess statistical differences between the groups on attachment disruption and a significant difference was found. It is possible that the age of the participant may have had an influence on the findings, but it is unlikely. Physical attachment disruption that would have a significantly negative impact on an individual's psychological health would normally occur during childhood (Bowlby, 1982/1969) and all participants in both groups were at least 16 years old. In addition, the participants were asked to state who physically raised them during their childhood. This question would require a retrospective answer and therefore is unlikely to be affected by the age of the participant in these samples. Hypothesis Two predicted that there would be differences between the violent offenders and non-offenders in the strength of the relationship between the attachment, anger, and aggression variables. However, age was statistically controlled for in these analyses and therefore the influence of age on the statistics would not have confounded the results.

The findings support research that has identified both attachment anxiety and attachment avoidance as frequently occurring attachment styles in violent offenders (Levinson & Fonagy 2004; Ross & Pfäfflin, 2004). The finding that attachment avoidance is more related to anger and aggression in violent offenders than in non-offenders is also supported by Levinson and Fonagy who found that more violent offenders were classified with avoidant characteristics than with anxious ones. There are many differences between the Levinson & Fonagy study and the present one: the ages of the violent offenders are very different, Levinson and Fonagy measured attachment to the mother only while the current study examined generalised and specific

attachment, and some of the violent offenders in the Levinson and Fonagy study were sexually violent as well as non-sexually violent. In spite of these differences in the conduct of these two studies, the results were similar.

Section Two – Strengths and Limitations of the Research

Strengths

An assessment of attachment using a generalised paradigm has not been used in the anger and aggression literature before and therefore the results found using this paradigm provide novel insights into attachment theory, extending our understanding of how attachment style relates to anger and aggression. The use of quantitative case studies allowed a specific examination of particular individuals who scored highly in self-reported aggression based on standardised cut–off scores. The multiple attachment approach used in Studies Four and Five have also not been applied in the context of anger and aggression before either in non-offenders or in violent offenders. In addition, this research adds to the literature on gender differences in the context of generalised attachment, anger, and aggression.

A further strength of the research involves the use of a violent offender sample. Although this thesis is concerned with understanding anger and aggression across all individuals, it is of further practical use to examine how generalised attachment anxiety and avoidance relate to anger and aggression in a sample of individuals who have been involved in the most serious type of aggression: violent offending.

The ultimate strengths of the research reported in this thesis are that the findings highlight the value and importance of attachment theory in applied psychology, they emphasise the need for further research in clinical populations, and they illuminate practical implications in treatment plans for both offending and non-offending

individuals who experience dysfunctional anger and/or aggression. Based on the findings reported in this thesis two new integrative models of attachment, anger, and aggression are presented in Section Three.

Limitations

Some limitations of this research should be noted. First, this research examined attachment, anger, and aggression using self-reported survey methods. Although all three of the questionnaires used have been well-researched and assessed for reliability, a possibility remains that their use may have led to some information, held outside of an individual's conscious awareness, being omitted. It is also possible that participants' answers may have been affected by social desirability, particularly in the offender sample, as the questions were read out to participants in the presence of a caseworker. The fact that most of the non-offending sample completed their questionnaires anonymously online may have reduced social desirability effects.

The findings could have been affected by selective recall, which is a proclivity to recall information based on previous experiences and to reinforce current expectations. However, the purpose of this research was to tap into information that would be activated selectively in memory, as it is this information that is likely to have an immediate effect on an individual's behaviour, perception of attachment figures, anger experience, and tendency to self-report aggression. It is more likely that personality traits would have some influence on the relationship between attachment, anger, aggression and further research might examine the degree to which core personality traits, (for example, introversion, extraversion, neuroticism - as in the Five Factor Model, McCrae & John, 1992) may relate to the relationship between attachment and anger and attachment and aggression. Mikulincer and Shaver (2003) argued that attachment style can be seen as a generalised construct similar to that of a separate

personality trait and it is not yet known to what degree generalised attachment anxiety is related to non-attachment related anxiety. Further research might develop the current studies on generalised attachment style in the context of other core personality traits and anger and aggression. For example, it could be suggested that individuals who score highly on extraversion may be more likely to score highly on dysfunctional anger and overt aggression than individuals who score highly on introversion. Further studies might therefore explore the amount of variance that other aspects of personality contribute to the relationships between generalised attachment, anger, and aggression.

Although attachment is the superordinate theory in the research presented, another key purpose of this research was to examine the relationship between anger arousal and cognition (as defined by Novaco, 1994) and both covert and overt aggression (as defined by Buss & Warren, 2000). It was found in this research (Studies Two and Three) that anger arousal and/ or cognition played the role of mediator between generalised attachment anxiety and covert aggression (in males and females) and overt aggression (in females). It could be argued that there is some degree of conceptual overlap between the cognition and arousal items on the NAS (Novaco, 2003) and the overt and covert items on the Aggression Questionnaire (Buss & Warren, 2000). Therefore, the statistical relationship between the anger and aggression variables assessed for both males and females were presented in Study Two (see results Section) and Study Three (see results section). The correlations showed all these variables to be significantly correlated in both the male and female samples at the $p <. 01$ levels. The uppermost correlation was $r =. 66$ (anger arousal and covert aggression in females) and the lowest correlation was $r = .32$ (anger cognition and overt aggression in males). The correlational findings do therefore show some statistical overlap between the anger and aggression variables. However, problematic statistical overlap within the analyses was

examined by assessing the variance inflation factor and tolerance statistics (as recommended by Field, 2005; Pallant, 2005). In addition, the mediation models were examined using hierarchical multiple regression, which assesses the unique variance contribution of each predictor in the analysis holding all other variables constant. Therefore, any statistical overlap between the variables was controlled for in the analyses conducted.

An alternative way of assessing attachment, anger, and aggression that may control for the effect of questionnaire methods is to use qualitative methods such as thematic analysis or interpretative phenomenological analysis in assessing responses to vignettes. However, as such methods have their own limitations, it is helpful to use as many different methods as possible. A qualitative method was not used in this study because it was considered that the role of generalised attachment in anger and aggression should first be examined quantitatively. A qualitative examination of generalised attachment may therefore be useful in further research once reliable findings have been identified.

There were two further possible limitations in this research. The first was that no female offenders were recruited in this research. The findings from all the non-offender studies in this research highlight that generalised attachment anxiety is a significant associate of both anger and aggression. It was noted that generalised attachment anxiety was found to be related to overt aggression in females but not in males. Therefore, it would be relevant to test the findings of Study Two in a forensic context with female violent offenders.

The final possible limitation was that there was an assumption (based on Fraley et al., 2006) that the key significant attachments in an individual's life were the mother (or female caregiving equivalent), father (or male caregiving equivalent), partner, and

best friend. However, it is possible that other people may have been significant in an individual's life, such as a sibling or a grandparent.

The explanatory framework used in this research is attachment theory. The hypothetical and empirical relevance of attachment theory in the context of anger and aggression has already been extensively discussed in the literature review. It is not proposed that no other factors are influential in dysfunctional anger and aggression. Indeed, other factors like pain have been found to increase anger affect (Lindsay & Anderson, 2000). Heat (Bushman et al., 2005), uncontrollable noise (Geen & McCown, 1984), and overcrowding (Lawrence & Andrews, 2004) can trigger aggression and mental disorder. Substance abuse has also been found to relate to violence (Monahan & Steadman, 1994; Monahan et al., 2001). Attachment theory was chosen as the key conceptual framework in this thesis because of the potential practical implications that attachment theory may have in applied settings.

Section Three - Theoretical and Practical Implications of the Research

Theoretical Implications of the Research

The results reported in this thesis have theoretical implications relating to the impact of attachment upon anger and aggression. The research findings from Studies One to Four are summarised diagrammatically in Figure 20 and the research findings from Study Five are summarised in Figure 21. The purpose of Figure 20 is to represent a model of the findings in this thesis for male and female non-offenders and therefore overt aggression is omitted from the outcome for males.

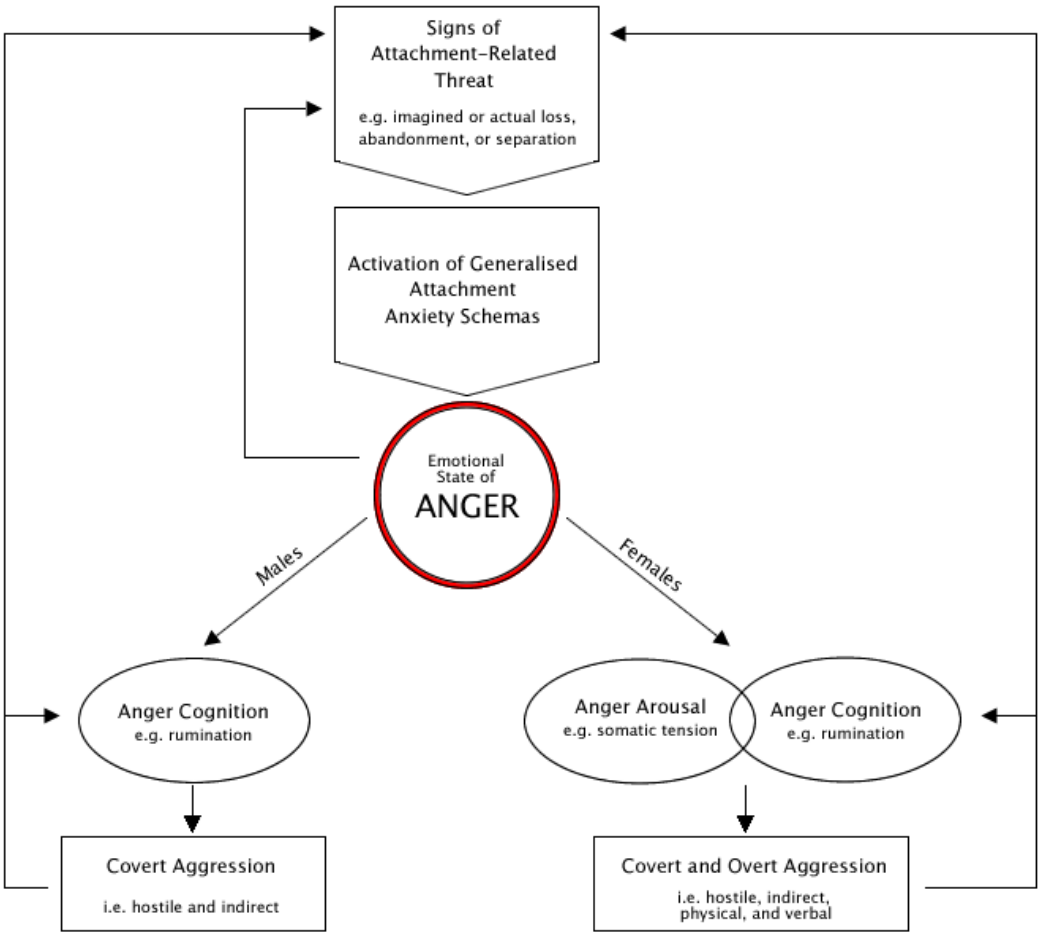

Figure 20. Integrative model of the relationship between attachment, anger, and aggression in male and female non-offenders.

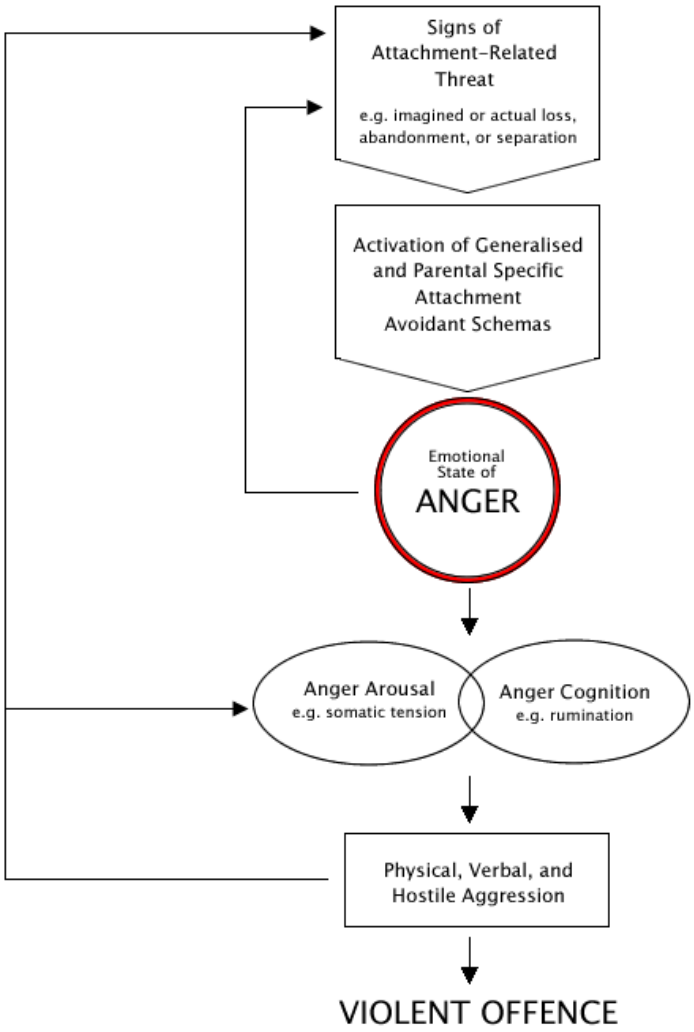

Figure 21. Hypothetical model of the relationship between generalised attachment avoidance, anger, and aggression in violent offenders (based on the tentative findings in Study Five).

Chapter One described the fundamental principles of the GAM (Anderson & Bushman, 2002). It is possible to interpret the findings of this thesis in the context of the GAM but also in the context of Novaco's anger theory (1994, See Chapter Two), and the core principles of attachment theory (Bowlby, 1982/1969; 1973; 1980; Mikulincer & Shaver, 2003). This section of the thesis will revisit the key fundamental

principles of the theories set out in the earlier chapters and interpret them in the context of the findings from this research.

As argued in Chapter One, the three core theories set out in this thesis can be conceptually aligned. They are all concerned with a specific human factor, attachment, anger, or aggression, but all three theories describe behaviour in the context of cognitive behavioural principles and cognitive systems. In Chapter Three it was explained that a cognitive system is a cognitive, innately predisposed, and evolutionary selected mechanism that 'activates' (or becomes aroused) when there is a perceived threat to an individual (see Bowlby, 1982/1969). Activation involves both physiological and cognitive arousal. Cognitive systems cannot exist entirely independently of others and, therefore, depending on individual differences, cognitive networks relating to attachment, anger, and aggression may integrate.

In the GAM, Anderson and Bushman (2002) proposed that a person in a specific situation experiences specific triggers, actual or perceived, which lead to the interaction of affective, cognitive, and physiological responses. The researchers also note that an individual experiences these cues in the context of individual 'person factors'. Person factors may relate to a variety of different aspects of personality (Anderson & Bushman). One of these factors could be an individual's attachment style.

In the context of the findings of this thesis, the person in the situation may experience an actual physical cue in the environment that elicits generalised attachment anxiety. This cue may be directly and situationally influenced by a significant other not being available and may therefore lead to the response of generalised attachment anxiety (See Mikulincer & Shaver, 2003, Figure 4). Alternatively, and importantly in the context of aggression or violence that is not obviously linked to an attachment figure, this physical cue may lead to a connection with an associated personal memory,

promoting an internally perceived cue that also generates the response of generalised attachment anxiety (e.g. intense physical proximity seeking). An example of an internally perceived cue may be overhearing another individual's conversation about an unfaithful partner but it could be any individually paired association that may seem to be unrelated to an attachment figure in terms of the presenting cue. Such internally perceived cues would be dependent on the individual's life experience and on the integration of his or her associations within cognitive systems in memory. The findings reported in this thesis may indicate that a situational or internally perceived cue may provoke a response of generalised attachment anxiety. Generalised attachment anxiety may immediately act as a provoking trigger (Bushman & Anderson & Bushman, 2002) that has a 'schematic domino effect'; first leading to anger and then leading to an aggressive response.

The findings in this thesis can also be aligned with Novaco's (1994) model of anger. According to Novaco, anger affect is generated by an environmental cue that leads to an interaction between cognitive and physiological responses that are individually associated with the label of 'anger'. Although Novaco talks specifically in the context of a provocative cue like verbal abuse, cognitive systems do not function independently, and therefore it is certainly possible to argue that a provocative cue may be a lack of attention by an attachment figure that is required by the individual in question, or by a association that also acts as a trigger.

The influence of cognitive biases in anger (Novaco & Welsh, 1989) may also be incorporated into how attachment, anger, and aggression inter-relate. For example, attentional cueing and perceptual matching seem particularly relevant to this discussion. Attentional cueing is an extended rumination about a provoking cue and preoccupation and rumination are part of anger cognition (Novaco, 1994). Novaco highlights that these

factors are likely to increase anger arousal. Personality factors like attachment anxiety may determine the extent of rumination as they may influence the degree to which a provoking event is selectively attended in preference to other factors in the environment or in memory. Perceptual matching may also be involved in how attachment, anger, and aggression relate. Perceptual matching is the mapping of personal feelings and expectations of a previously provoking experience onto current situations and has been linked to 'violence schemas' in previous research (Shelley & Toch, 1968). Therefore, the inter-relationship between cues within both the attachment and anger systems might serve to increase the intensity of the outcome; for example, lead to an aggressive act.

The links between attachment, anger, and aggression were examined in this thesis in three different samples: adult male and female non-offenders and violent male young offenders. In adult male non-offenders, the research showed that generalised attachment anxiety was related to both dysfunctional anger and aggression, a finding that is consistent with attachment theory (Bowlby, 1969/1982, 1973, 1980; Mikulincer & Shaver, 2003). The research also showed that generalised attachment anxiety was related to covert aggression, that is, hostile aggression and indirect aggression. Additional analyses showed that anger cognition (e.g. angry thoughts) played the role as a mediator between generalised attachment anxiety and covert aggression. All these findings are consistent with classical attachment theory (Bowlby; Mikulincer & Shaver).

The research in this thesis did not indicate that there was a link between generalised attachment avoidance and anger and aggression in adult male non-offenders, yet an association was expected based on attachment theory (Bowlby, 1973). As argued in Study One, it is highly likely that the type of sample used led to the lack of association found between generalised attachment anxiety and anger and aggression.

However, it is also arguable that the results found in this study highlight the findings by Arias et al. (1987), Baumeister and Sommer (1997), Beckner (2005), and Campbell and Muncer (1987) who all found that the association between attachment styles and negative outcomes was more significant in females than in males. The findings from this research suggest that generalised attachment anxiety is the most influential attachment style in non-offending males and females, but that generalised attachment avoidance becomes more important in predicting dysfunctional anger and aggression when a sample is used of young male violent offenders who have mainly been physically separated from their parents.

In adult female non-offenders, the research in this thesis showed that both generalised attachment anxiety and generalised attachment avoidance was related to anger and aggression, but that generalised attachment anxiety was the more powerful associate of anger and aggression. The research also found that anger arousal and anger cognition both played roles as a mediator between generalised attachment anxiety and both covert and overt aggression.

The findings taken from the female sample were highly consistent with attachment theory (Bowlby, 1973) and were also consistent with some of the research on gender differences that found that attachment theory was a more powerful predictor of problem behaviour in females than in males (Arias et al., 1987; Baumeister & Sommer; 1997; Beckner, 2005; Campbell & Muncer, 1987).

In male violent young offenders, the associations between attachment, anger, and aggression were different from those observed in the non-offending group. Generalised attachment avoidance and relationship-specific attachment avoidance were more related to anger and aggression than either relationship-specific attachment anxiety or generalised attachment anxiety. These findings are consistent with the

research by Levinson & Fonagy (2004) and Van IJzendoorn et al. (1997), and these findings provide support for the argument that attachment avoidance is more likely to be present in individuals who have more severe problems with anger and aggression. The findings may also indicate that attachment avoidance is more common in individuals who have been physically separated from their parents because it is a process of unresolved or 'dysfunctional' detachment for emotional survival.

Chapter Three presented an expanded theoretical model on attachment by Mikulincer et al. (2003) and it highlighted three factors that influenced the relationship between attachment figure availability and the ability to self-regulate emotions in a functional and adaptive way (see Figure 5).

As stated in Chapter Three, this expansion of the model provides more detail into how an individual's attachment style can function separately outside of a relationship context. The focus on the development of security beyond reliance on the attachment figure has clear practical and theoretical implications for the regulation of negative affect, especially that affect which interacts with other factors, like anger or aggression.

Self-expansion, or, "inclusion of a partner's resources and strengths in one's self-concept" (Mikulincer et al., 2003 p.94) and the internalisation of functions that were originally driven by the attachment figure, but develop to become part of the individual's "self", might relate to a therapist's ability to contain the individual's angry or aggressive emotions and to help that individual learn to channel and regulate their emotions in a different and more functional manner. If this argument by Mikulincer et al. is seen in the context of therapy rather than in the context of a romantic relationship there are clear implications for the importance of therapist awareness of attachment processes and of their own attachment style on the process of therapy. In addition,

previous research has repeatedly noted the existence of defensive exclusion of attachment needs in individuals who display avoidant attachment styles rather than anxious styles (Fraley et al., 2000; Fraley & Brumbaugh, 2007; Mikulincer & Orbach, 1995). Such research highlights differences in treatment needs for these individuals.

Practical Implications of the Research

The findings reported in this thesis have practical implications for the management and treatment of both offenders and non-offenders who present for treatment with anger problems or aggression. First, is the recognition and understanding of an individual's perceptions of relationships and emotional bonds by a therapist in the context of a therapeutic alliance.

The therapeutic alliance is considered to be a core condition for change (Bordin, 1979). A consideration of the key role of the therapeutic alliance in offender rehabilitation has been revisited recently by Ross, Polaschek, and Ward (2008). It seems unlikely that individuals who present for treatment because of problems with anger or aggression would feel safe to explore reasons for their anger and aggression if they did not trust the therapist (Moore, Moretti, & Holland, 1998). Likewise, it may be difficult for therapists to foster a safe environment for change if they are not aware of the impact of their own perceptions of emotional bonds. This view is supported by Ackerman and Hilsenroth's (2003) review that indicates an effective working alliance is influenced by key therapist traits that relate to secure attachment. An awareness of how an individual perceives his or her relationship is likely to be related to the cognitive and affective internal factors required for treatment readiness. Treatment readiness has been defined as, "the presence of characteristics (states or dispositions) within either the client or the therapeutic situation, which are likely to promote engagement in therapy and which, thereby, are likely to enhance therapeutic change" (Ward et al., 2004, p.647). As such,

it seems reasonable to suggest that if greater consideration were given to the role of dyadic attachment dynamics in treatments for anger, the internal factors leading to treatment readiness could be further understood.

Recent experimental research has shown that secure schema priming can reduce negative responses to hurtful relationship events in insecurely-attached individuals (Cassidy et al., 2009). Furthermore, this research by Cassidy et al. showed, *inter alia*, that avoidantly-attached individuals who were primed with secure schemas were less defensive and hostile in response to hurtful relationship events, while anxiously-attached individuals who were primed with secure schemas were more able to cope with hurtful events, strong feelings of rejection, and were more able to express vulnerability. Such findings, as highlighted by Cassidy et al., have significant implications for the ability to engage insecurely-attached individuals in treatment. Although implications for the treatment engagement of angry and aggressive individuals were not specifically discussed in this paper, there are clear opportunities for further research in secure schema priming in applied settings.

The present research indicates that generalised attachment anxiety (Studies One to Four) and avoidance (Study Four and Five) are significant associates of anger and aggression. The model presented in Figure 20 showed the findings reported in this thesis based on the models by Anderson and Bushman (2002), Novaco (1994), and Mikulincer and Shaver (2003). The model presented in Figure 21 showed the findings, and hypothetical extension of findings, from the violent offender sample. The importance of the role of a therapist as a 'parental' figure in order to work through previous experiences has been frequently highlighted in the clinical literature, and this process is often referred to as 'maternal or paternal transference' (Bowlby, 1998; see Mikulincer & Shaver, 2007). With all these points in mind (Bowlby, 1998, Cassidy et

al., Studies One to Five), it is possible to make use of the models presented in Figure 20 and 23 in the context of developing and maintaining a therapeutic alliance.

Future Directions

The findings reported in this thesis and their subsequent implications underscore two key directions for subsequent studies.

The question of how generalised attachment relates to anger and aggression in female violent young offenders should be examined. Studies One to Four indicated that attachment theory explained female anger and aggression to a greater extent than male anger and aggression. The findings in the non-offending sample showed gender differences in the relationship between generalised attachment and anger and aggression. It is possible that further research on female violent young offenders' attachment orientations will have implications for gender differences in offender treatment.

Another consideration for further research arises from the current findings set out in this thesis and also from recent research by Cassidy et al. (2009). Such research would compare the differences in offender groups who receive no treatment (control), who receive standard anger management treatment, or who receive attachment-related cognitive priming before each anger management treatment session. Assessments of anger could be completed before and after these sessions. It is feasible that individuals in the attachment-priming group may show a greater reduction in anger feelings than those individuals in the control group and in the anger management group. Such extended research may provide further impetus for considering the role of (reciprocal) attachment styles in the therapeutic alliance.

CONCLUSION

The main aim of this thesis was to investigate the relationship between generalised and specific attachment anxiety and avoidance in the context of anger arousal and cognition and overt and covert aggression in males, females, and in violent male offenders. The findings supported the place of individuals' attachment representations in the context of anger and aggression. Individuals' perceptions of their relationships with others have an impact on how they manage anger and associated behaviours. As a result, these findings have practical and theoretical implications for the treatment of individuals who experience problems with anger and aggression. The findings may support further investigation into the introduction of attachment-based modules or sessions in interventions with individuals who experience problems with anger, aggression, and who commit acts of violence. While it is not proposed that problems with attachment are the only influencing factors in dysfunctional anger and aggression, a greater consideration of the effect of attachment styles in applied settings may improve treatment engagement and effectiveness.

APPENDIX A

This appendix contains the Informed Consent Statements, the Demographic Questionnaires for the participants, the ECR-R (Fraley et al., 1998), and the Buss Perry Aggression Questionnaire (Buss & Perry, 1992)

RESEARCH STUDY: PARTICIPANT INFORMATION AND CONSENT FORM
BACKGROUND INFORMATION

Hi, my name is Claire: I need help from people who are serving a community sentence for a violent offence and would like to ask you if you could help me with this work. I'm running a project that looks at relationships, anger, and aggression.

Why am I doing this study? I'm interested in how attachment towards people may have an affect on the experience of anger and aggression. The study is important because it aims to contribute to ideas on:

- Why individuals might offend, and,
- How others might help people manage their anger and/or offending.

What do I need to do? To help me with the study, you would need to fill out three questionnaires with a case worker. One questionnaire is interested in knowing about your relationships with:

- Your mother (or a mother figure, like a step mother, aunt, or nurse),
- Father (or a father figure, like an uncle, family friend, or care worker),
- A girlfriend, and,
- A best friend (who isn't a girlfriend)

The second questionnaire is interested in your feelings of anger, and the last questionnaire is interested in your feelings of aggression.

Important facts.

- I'm a researcher and this study is independent from the Youth Offending Team.
- I am a member of the British Psychological Society and I adhere to their ethical code of research practice.
- This study is voluntary. Not participating or withdrawing from the study will in no way affect the service you are receiving from the Team.
- Taking part in this study will *in no way* be used in any judgments or decisions on your sentence or on the service you receive from your Youth Offending Team.
- Your answers will remain confidential. Your answers will remain anonymous except from the person interviewing you (or assisting you to complete the questionnaires).
- If I would like to speak to you in the future, a member of the Youth Offending Team will request your permission, and you may accept or refuse this.
- If you would like feedback or have questions, you will have the opportunity to ask me, if you request this.
- This consent form will not be kept with your answers so that they remain anonymous.

Consent statement: "I have read this information and I consent to take part in this study"
Please write your participant code here _____
(from the questionnaire e.g. N1-N20, L1-L20, or C1-C20)

Please write "*I consent*" here_____

Thank you for taking part in this study

------- (**YOT**: Please remove and keep this section) ----------

This part of the consent form will be retained by the Youth Offending Team and will remain confidential from the researcher.

Please write your participant code here (e.g. N1): _____

Signature: _____

Participant number (for researcher use)_____

General Demographic Questions

General Questions

Age:_____

Gender (circle) MALE FEMALE

How would you describe your ethnic group? (E.g. White British, Asian British, Black African etc..)_____

What are you serving a community sentence for?
_____

Was this violent offence directed at a member of the family or a friend?_____

Who was this violent offence directed at?_____

Are you currently in a romantic relationship? (Please ring) YES NO

If yes, for how long have you been in a romantic relationship? _____YEAR(S) and/ or _____MONTH(S)

What is the gender of your best friend (or last best friend if you do not currently have one)? (Please ring) MALE FEMALE

Who brought you up during childhood? (Please choose and ring):

YES, BOTH BIOLOGICAL PARENTS	BIOLOGICAL FATHER ONLY
BIOLOGICAL MOTHER ONLY	BIOLOGICAL FATHER AND STEPMOTHER
BIOLOGICAL MOTHER AND STEPFATHER	OTHER RELATIVES

OTHER (Please state)

Thank you

Questionnaire: Experiences in Close Relationships

The statements below relate to how you may feel in emotionally close relationships. We are interested in how you feel in general about your relationship with

- Your mother (or a mother figure, like a step mother, aunt, or nurse),
- Father (or a father figure, like an uncle, family friend, or care worker),
- A girlfriend, and,
- A best friend (*who isn't a girlfriend or boyfriend)*

if you are not currently in a romantic relationship or do not currently have a best friend, please answer these questions considering previous relationships of this type.

There are no right or wrong answers, so please describe how you feel as honestly as you can.

Please read each statement carefully and decide to what extent you agree or disagree to the statements given. Please indicate your response to each question by crossing the circle in the appropriate column for ***each*** relationship.

I'm afraid that I will lose this person's love							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I prefer not to show this person how I feel deep down							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I often worry that this person will not want to stay with me							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I feel comfortable sharing my private thoughts and feelings with this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I often worry that this person does not really love me							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I find it difficult to allow myself to depend on this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I worry that this person won't care about me as much as I care about them							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I am very comfortable being close to this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I often wish that this person's feelings for me were as strong as my feelings for them							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I don't feel comfortable opening up to this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I worry a lot about my relationship with this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I prefer not to be too close to this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

When this person is out of sight, I worry that they might become more interested in someone or something else							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I get uncomfortable when this person wants to be very close							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

When I show my feelings for this person, I'm afraid they will not feel the same way about me							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I find it relatively easy to get close to this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I rarely worry about this person leaving me							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

It's not difficult for me to get close to this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

This person makes me doubt myself							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I usually discuss my problems and concerns with this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I do not often worry about being abandoned							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

It helps to turn to this person in times of need							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I find that this person doesn't want to get as close as I would like							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I tell this person just about everything							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

Sometimes this person changes their feelings about me for no apparent reason							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

My desire to be very close sometimes scares this person away							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I talk things over with this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I am nervous when this person gets too close to me							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I'm afraid that once this person gets to know me, they won't like who I really am							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I feel comfortable depending on this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

It makes me mad that I don't get the affection and support that I need from this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I find it easy to depend upon this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

I worry that I won't measure up to this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

It's easy for me to be affectionate with this person							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

This person only seems to notice me when I'm angry							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

This person really understands me and my needs							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	O	O	O	O	O	O	O
Father	O	O	O	O	O	O	O
Partner	O	O	O	O	O	O	O
Best Friend	O	O	O	O	O	O	O

[1] This scale is adapted from Fraley, Waller, and Brennan's (2000) Revised version of the Experiences in Close Relationships Scale (ECR-R).

BUSS-PERRY AGGRESSION QUESTIONNAIRE
(Buss & Perry, 1992)

Please rate each of the following items in terms of how characteristic they are of you. Use the following scale for answering these items.

1	2	3	4	5	6	7
Extremely uncharacteristic of me						**Extremely characteristic of me**

1) Once in a while I can't control the urge to strike another person.
2) Given enough provocation, I may hit another person.
3) If somebody hits me, I hit back.
4) I get into fights a little more than the average person.
5) If I have to resort to violence to protect my rights, I will.
6) There are people who pushed me so far that we came to blows.
7) I can think of no good reason for ever hitting a person.
8) I have threatened people I know.
9) I have become so mad that I have broken things.
10) I tell my friends openly when I disagree with them.
11) I often find myself disagreeing with people.
12) When people annoy me, I may tell them what I think of them.
13) I can't help getting into arguments when people disagree with me.
14) My friends say that I'm somewhat argumentative.
15) I flare up quickly but get over it quickly.
16) When frustrated, I let my irritation show.
17) I sometimes feel like a powder keg ready to explode.
18) I am an even-tempered person.
19) Some of my friends think I'm a hothead.
20) Sometimes I fly off the handle for no good reason.
21) I have trouble controlling my temper.
22) I am sometimes eaten up with jealousy.
23) At times I feel I have gotten a raw deal out of life.
24) Other people always seem to get the breaks.
25) I wonder why sometimes I feel so bitter about things.
26) I know that "friends" talk about me behind my back.
27) I am suspicious of overly friendly strangers.
28) I sometimes feel that people are laughing at me behind me back.
29) When people are especially nice, I wonder what they want.

APPENDIX B

T-tests were performed to indicate that there was no statistical difference between the completion groups for the Aggression Questionnaire (Buss & Warren, 2000), the Novaco Anger Scale (1994), the ECR-R, generalised attachment anxiety), and generalised attachment avoidance (Fraley et. al., 1998).

AQ: t (69) = -.568, p >.05

NAS: t (69) = 1.359, p >.05

ECR-R (Anx) t (69) = .331, p >.05

ECR-R (Av) t (69) =1.275, p >.05

APPENDIX C

RESEARCH STUDY: INTERVIEWER/ CASE WORKER INFORMATION AND CONSENT FORM

BACKGROUND INFORMATION

My name is Claire and I'm researching for a doctorate in Forensic Psychology at the University of Leicester. I need participants to take part in the research who are serving a community sentence (or community part of a custodial sentence) for a violent offence against the person. I'd like ask you if you would be able to help me with this work. I'm running a project that looks at the relationships between attachment to other people, anger, and aggression/violence.

Why am I doing this study? I'm interested in how individuals' style of attachment towards other people may have a significant impact on their experiences of anger and aggression. This research is important because its aims are:

- To contribute to ideas on precursors to offending, and,
- To make practical implications in the treatment and/or management of offenders.

What do you need to know and do to help me? Complete three questionnaires, a demographics form, and a consent form per person. Another YOT that is taking part have, on average, have completed these packs in around one hour per participant. I've tried to make this study as practical as possible at the same time as making the research as effective and as reliable as possible in terms of scientific methods to collect information.

Questionnaires do not need to be completed all in one sitting, but they can be if that is possible.

All questionnaire sheets and consent forms are coded so that it is explicit as to which questionnaires belong together. There should be **5** documents for each individual and they will all have an identical code on e.g. X1, N1 etc. (These five documents are listed below).

It is really important that all questions are answered to ensure that the study is reliable, and that we can make balanced and valid conclusions as to the contribution of attachment style and anger on aggression and violence, and how these variables relate. With consistently missing data, we will not be able to make the implications that we want to.
Questionnaires must be presented in the following order, to ensure continuity:

1. Information and consent
2. Demographics (unless completed already from case files)
3. Aggression Questionnaire (AQ)

4. Novaco Anger Scale and Provocation Inventory (NAS-PI)
5. Experiences in Close Relationships.

Participants:

- Males who are 16+ and serving a community sentence (or community part of a custodial sentence) for a violent offence. If your youth is currently close to age 16, they can take part as soon as they turn 16.

The Questionnaires

Questionnaire 1 – Attachment.

- This questionnaire asks for participants' feelings about their relationships with:
  - The mother (or a mother figure, like a step mother, aunt, or nurse),
  - The father (or a father figure, like an uncle, family friend, or care worker),
  - A girlfriend (or a past girlfriend or similar if no current girlfriend)
  - A best friend (who isn't the girlfriend)

If, in the absence of any of these attachment figures, please ask the participant to *imagine* how they would interact instead. Please indicate which relationships are imagined if relevant on the questionnaire. So if they are imagining a Nurse instead of a biological mother, please note this on the questionnaire so I can code for this.

This questionnaire requires that each participant answers each statement for each relationship (or equivalent relationship). The instructions are on the form: There are seven possible answers to each statement from strongly disagree to strongly agree. For example, if I were to fill this questionnaire in, wanting to indicate I **strongly disagreed** with the statement for **all four relationships**, I would complete the form as shown:

"I'm afraid that I will lose this person's love"							
	Strongly disagree	Disagree	Partly Disagree	Neither Agree nor disagree	Partly Agree	Agree	Strongly Agree
Mother	X	O	O	O	O	O	O
Father	X	O	O	O	O	O	O
Partner	X	O	O	O	O	O	O
Best Friend	X	O	O	O	O	O	O

To ensure the results are reliable, all questions should be completed.

Questionnaire 2 – Anger.

- This questionnaire asks for participants' feelings about their anger (NAS-PI). It asks questions about cognitive, arousal, and behavioural aspects of anger and also asks about factors relating to anger regulation and provocation.
- Please note that this questionnaire is copyright protected.

The instructions are clearly listed on the questionnaire. There are questions on both sides. Because this questionnaire is on an officially printed form, there are places to fill in the name – this should be left blank to ensure anonymity. The questions require a response on a scale of 1-3 for the first one and a half pages (where 1 = never true and 3 = always true), and then on a scale of 1-4 on the second half of the back page (where 1 = not at all angry, and 4 = very angry).

To ensure the results are reliable, all questions should be completed.

Questionnaire 3 – Aggression.

- This questionnaire asks for participants' feelings about their aggression (AQ). It asks questions about five aspects of aggression: Physical aggression, verbal aggression, hostility, anger, and indirect aggression.
- Please note that this questionnaire is copyright protected.

Very similarly to the NAS-PI, the instructions for the AQ are clearly listed on the questionnaire. The questionnaire is situated on the back of the form. Because this questionnaire is also on an officially printed form, there are again places to fill in the name – this should be left blank to ensure anonymity. The questions require a response on a scale 1-5 where 1 = not at all like me, and 5 = completely like me.

To ensure the results are reliable, all questions should be completed.

Essential facts and study terms and conditions.

- I'm an independent researcher and I am a member of the British Psychological Society: I adhere to their ethical code of research practice. There are some important facts about the research that I have to clarify with you before the questionnaires are administered.
    - Within this ethical code, participants must be provided with the information and consent form that I have provided to you. They *must* sign this form and have the opportunity to read it so that they are fully informed about the nature of the study. Please follow the instructions on the actual form. Note that you need to keep one of the sections of this form yourself at work. This is important because it protects the youth's identity but at the same time gives me the ethical evidence that I need to prove informed consent. This process if a requirement of my ethical approval.
    - Ethical approval has been provided by the University of Leicester Ethics Committee for this research as an 'applied theoretical research study' not a 'practice study'. There are aspects of this research that have never been done before, which makes the research unique, but also therefore renders it unethical to infer immediately into practice without replication. Therefore, these results must not be used in any policy making decisions on the offenders'

community sentences and must not affect the service that the youth receives (of course, overall results will be provided to all Youth Offending Teams taking part and any help that the researcher can give if also offered).

- These questionnaires must only be evaluated by individuals specifically trained to do so or supervised by a qualified professional.
- The Novaco Anger Scale (NAS-PI) and the Aggression Questionnaire (AQ) are protected by Copyright © 2003 and 2000 by Western Psychological Services and may not be reproduced in any form, in whole or in part, by any medium or for any purpose without the prior, written authorisation of WPS.

I really appreciate your support, and would like to offer some time to you to provide feedback on this research if you request this.
My e-mail is cab46@le.ac.uk

Please separate this part of the document here form from the rest of the instructions. The instructions are for you to keep for reference.

Please return this consent statement with the questionnaires that have been completed. It is an ethical requirement that I have this form from any case managers talking part in the study,

Consent statement:

"I have read this information and I understand and agree to the terms noted above"

Name: _____

Signed _____

Date_____

PLEASE RETURN THIS SECTION TO ME WITH THE COMPLETED QUESTIONNIARES

REFERENCES

Achenbach, T. M. (1991). *Manual for the child behaviour checklist*. Burlington, VT: University of Vermont Department of Psychiatry.

Ackerman, S. J., & Hilsenroth, M. J. (2003). A review of therapist characteristics and techniques positively impacting the therapeutic alliance. *Psychology Review, 23*, 1-33.

Ainsworth, M., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the Strange Situation.* Hillsdale, NJ: Erlbaum.

Ainsworth, M. D. S. (1967). *Infancy in Uganda: Infant care and the growth of love*. Baltimore: Johns Hopkins University Press.

Ainsworth, M. D. S. (1991). Attachment and other affectional bonds across the life cycle. In C. M. Parkes, J. Stevenson-Hinde & P. Marris (Eds.), *Attachment across the life cycle* (pp. 33-51). New York: Routledge.

Allen, J. G., Stein, H., Fonagy, P., Fultz, J., & Target, M. (2005). Rethinking adult attachment: a study of expert consensus. *Bulletin of the Menninger Clinic, 69*, 59-80.

Allred, K. G. (2000). Anger and Retaliation in Conflict. In T. M. .Deutsch & P. T. Coleman (Eds.), *The handbook of conflict resolution: Theory and practice* (pp. 236-255). San Francisco: Jossey-Bass

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (Text revision 4th ed.). Washington, DC: American Psychiatric Association.

Andersen, M. L., & Taylor, H. F. (2005). *Sociology*. Belmont: CA: Wadsworth.

Anderson, C. A., & Bushman, B. (2002). Human aggression. *Annual Review of Psychology, 53*, 27-51.

Anderson, C. L., & Alexander, P. C. (1996). The relationship between attachment and dissociation in adult survivors of incest. *Psychiatry-Interpersonal and Biological Processes, 59*, 240-254.

Andrews, D. A., & Bonta, J. (2003). *Psychology of criminal conduct* (3 ed.). Cincinnati, OH: Anderson.

Andrews, G., Pollock, C., & Stewart, G. (1989). The Determination of Defense Style by Questionnaire. *Archives of General Psychiatry, 46*, 455-460.

Archer, J., & Haigh, A.M. (1997). Beliefs about aggression amongst male and female prisoners. *Aggressive Behavior, 23,* 405-415.

Arias, I., Samios, M., & O'Leary, K. D. (1987). Prevalence and correlates of physical aggression during courtship. *Journal of Interpersonal Violence, 2, 82-90.*

Armsden, G.C., & Greenberg, M.T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16,* 427-453.

Arrigo, B. A., & Griffin, A. (2004). Serial murder and the case of Aileen Wurnos: Attachment theory, psychopathy and predatory aggression. *Behavioural Sciences and the Law, 22*, 375-393.

Averill, J. R. (1982). *Anger and aggression: an essay on emotion*. New York: Springer.

Babcock, J. C., Jacobson, N. S., Gottman, J. M., & Yerington, T. P. (2000). Attachment, emotional regulation, and the function of marital violence: Differences between secure, preoccupied, and dismissing violent and nonviolent husbands. *Journal of Family Violence, 15*, 391-409.

Baker, E., & Beech, A. R. (2004). Dissociation and variability of adult attachment dimensions and early maladaptive schemas in sexual and violent offenders. *Journal of Interpersonal Violence, 19*, 1119-1136.

Baker, M., Van Hasselt, V. B., & Sellers, A.H. (2008) Validation of the Novaco anger scale in an incarcerated offender population. *Criminal Justice and Behavior, 35,* 741-754.

Bandura, A. (1973). *Aggression: A social learning analysis*. Englewood Cliffs, NY: Prentice-Hall.

Bandura, A. (1983). Psychological mechanisms of aggression. In R. G. Geen & E. Donnerstein (Eds.), *Aggression: Theoretical and empirical reviews* (pp. 1-40). New York: Academic Press.

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

Baron, R. A., & Richardson, D. (1994). *Human Aggression.* New York: Plenum.

Bartholomew, K. (1990). Avoidance of intimacy: an attachment perspective. *Journal of Social and Personal Relationships, 7*, 147-178.

Bartholomew, K., & Allison, C. (2006). An attachment perspective on abusive dynamics in intimate relationships. In M. Mikulincer & G. S. Goodman (Eds.), *Dynamics of romantic love: Attachment, caregiving, and sex*. New York: Guilford Press.

Bartholomew, K., Henderson, A. J. Z., & Dutton, D. G. (2001). Insecure attachment and abusive intimate relationships. In C. Clulow (Ed.), *Adult attachment and couple work: Applying the "secure base" concept in research and practice* (pp. 43-61). London: Routledge.

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: a test of a four category model. *Journal of Personality and Social Psychology, 61*, 226-244.

Bartholomew, K., & Shaver, P. R. (1988). Methods of assessing adult attachment: Do they converge? In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 25-45). New York: Guilford Press.

Baton, C., & Ogle, R. (2007). Who's it gonna be - you or me? The potential of social learning for integrated homicide-suicide theory. In R. L. A. G. F. Jensen (Ed.), *Advances on Criminological Theory, Volume 11: Social Learning and the Explanation of Crime.* (pp. 85-108). Edison: NJ: Transaction Publishers.

Baumeister, R. F. (1997). *Evil: Inside human violence and cruelty*. New York: W.H. Freeman.

Baumeister, R. F., & Sommer, K. L. (1997). What do men what? Gender differences and two spheres of belongingness: Comment on Cross and Madson (1997). *Psychological Bulletin, 122*, 38-44.

Beck, A. T. (1999). *Evil: Inside human violence and cruelty*. New York: Owl Books.

Beck, A. T. (2000). Prisoners of hate: The cognitive basis of anger, hostility, and violence. New York: Harper Collins Perennial.

Beckner, H. M. (2005). Attachment theory as a redictor of female aggression: Texas A & M University.

Berkowitz, L. (1962). *Aggression: A Social Psychological Analysis*. New York: McGraw Hill.

Berkowitz, L. (1970). Experimental investigations of hostility catharsis. *Journal of Consulting and Clinical Psychology, 35*, 1-7.

Berkowitz, L. (1986). Some varieties of human aggression: Criminal violence as coercion, rule-following, impression-management and impulsive behaviour. In A. Campbell & J. J. Gibbs (Eds.), *Violent transactions* (pp. 87-103). Oxford: Basil Blackwell.

Berkowitz, L. (1989). Frustration-aggression hypothesis: Examination and reformulation. *Psychological Bulletin, 106*, 59-73.

Berkowitz, L. (1990a). On the formation and regulation of anger and aggression. *American Psychologist, 45*, 494-503.

Berkowitz, L. (1990b). On the Formation and Regulation of Anger and Aggression - a Cognitive-Neoassociationistic Analysis. *American Psychologist, 45*, 494-503.

Berkowitz, L. (1993). Aggression: Its causes, consequences, and control. New York: McGraw-Hill.

Blackburn, R. (1971). Personality types among abnormal homicides. *British Journal of Criminology, 11*, 14-31.

Blackburn, R. (1986). Patterns of personality deviation among violent offenders: Replication and extension of an empirical taxonomy. *British Journal of Criminology, 26*, 254-269.

Blackburn, R. (1993). The psychology of criminal conduct: Theory, research and practice. Chichester: John Wiley & Sons.

Blumenthal, S., & Lavender, T. (2000). *Violence and mental disorder*. London: Jessica Kingsley.

Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy, Theory, Research, and Practice, 16,* 252-260.

Bowlby, J. (1944). Forty-four juvenile thieves: Their characters and home-life. *International Journal of Psycho-Analysis, 25*, 19-43, 107-128.

Bowlby, J. (1973). Attachment and loss: Vol 2. Separation: anxiety and anger. New York: Basic Books.

Bowlby, J. (1980). *Attachment and loss: Vol. 3. Sadness and depression* (Vol. 3). New York: Basic Books.

Bowlby, J. (1982/1969). *Attachment and loss: Vol. 1. Attachment* (2 ed.). New York: Basic Books.

Bowlby, J. (1988). A secure base: Clinical applications of attachment theory. London: Routledge.

Bradshaw, G. A., Schore, A. N., Brown, J. L., Poole, J. H., & Moss, C. J. (2005). Elephant breakdown. *Nature, 433*, 807-807.

Brennan, K. A., Clarke, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: an integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York: Guilford Press.

Brennan, K. A., & Shaver, P. R. (1998). Attachment styles and personality disorders: Their connections to each other and to parental divorce, parental death, and perceptions of parental caregiving. *Journal of Personality, 66*, 835-878.

Breslin, F. C., Riggs, D. S., O'Leary, K. D., & Arias, I. (1990). Family precursors, expected and actual consequences of dating aggression. *Journal of Interpersonal Violence, 5,* 247-258.

Brown, T. (2002). DSM-IV: ADHD and executive function impairments. *Advanced Studies in Medicine, 25*, 910-914.

Burk, L. R., & Burkhart, B. R. (2003). Disorganized attachment as a diathesis for sexual deviance developmental experience and the motivation for sexual offending. *Aggression and Violent Behavior 8*, 487–511.

Burney, D. M. (2008). The adolescent anger rating scale: Its initial development and validation. Queenston, ON: Edwin Meller Press.
Burt, S.A., & Donnellan, M.B. (2008). Personality correlates of aggressive and non-aggressive antisocial behavior. *Personality and Individual Differences, 44,* 53-63.
Bushman, B., & Anderson, C. L. (2001). Is it time to pull the plug on the hostile versus instrumental aggression dichotomy? . *Psychological Review, 108*, 273-279.
Bushman, B. J., Wang, M. C., & Anderson, C. A. (2005). Is the curve relating temperature to aggression linear or curvilinear? A Response to Bell (2005) and to Cohn and Rotton (2005) *Journal of Personality and Social Psychology, 89*, 74-77.
Buss, A. H. (1961). *The psychology of aggression*. New York: Wiley.
Buss, A.H., & Durkee, A., (1957). An inventory for assessing different kinds of hostility. *Journal of Consulting Psychology, 21,* 343-349.
Buss, A. H., & Perry, M.P. (1992). The aggression questionnaire. *Journal of Personality and Social Psychology, 63,* 452-459.
Buss, A. H., & Warren, W. L. (2000). *The Aggression Questionnaire manual*. Los Angeles: Western Psychological Services.
Butler, S., Fearon, P., Atkinson, L., & Parker, K. (2007). Testing an interactive model of symptom severity in conduct disordered youth: Family relationships, antisocial cognitions, and social-contextual risk. *Criminal Justice and Behaviour, 34*, 721-738.
Campbell, A., & Muncer, S. (2008). Intent to harm or injure? Gender and the expression of anger. *Aggressive Behavior, 34*(282-293).
Campbell, A., & Muncer, S. (1987). Models of anger and aggression in the social talk of women and men. *Journal for the Theory of Social Behaviour, 17,* 489-511.
Carr, A. (2005). Contributions to the study of violence and trauma - Multisystemic therapy, exposure therapy, attachment styles, and therapy process research. *Journal of Interpersonal Violence, 20*, 426-435.
Caspers, K. M., Cadoret, R. J., Langbehn, D., Yucuis, R., & Troutman, B. (2005). Contributions of attachment style and perceived social support to lifetime use of illicit substances. *Addictive Behaviors, 30*, 1007-1011.
Cassidy, J., Shaver., P. R., Mikulincer, M., & Lavy, S. (2009). Experimentally induced security influences response to psychological pain. *Journal of Social and Clinical Psychology, 28,* 463-478.
Cassidy, J., & Kobak, R. R. (1988). Avoidance and its relationship with other defensive processes. In J. Belsky, & Zezworski, T. (Ed.), *Clinical implications of attachment* (pp. 300-323). Hillsdale, NJ: Erlbaum.
Chemtob, C. M., Novaco, R.W., Hamada, R.S., & Gross, D.M., & Smith, G. (1997). Anger regulation deficits in combat-related posttraumatic stress disorder. *Journal of Traumatic Stress, 10*, 17-36.
Chermack, S. T., & Giancola, P. R. (1997). The relation between alcohol and aggression: An integrated biopsychological conceptualization. *Clinical Psychology Review, 17*, 621-649.
Ciechanowski, P. S., Katon, W. J., Russo, J. E., & Dwight-Johnson, M. M. (2002). Association of attachment style to lifetime medically unexplained symptoms in patients with hepatitis C. *Psychosomatics, 43,* 206–212.
Ciechanowski, P., Walker, E. A., Katon, W. J., & Russo, J. E. (2002). Attachment theory: A model for health care utilization and somatization. *Psychosomatic Medicine, 64,* 660–667.

Clay, D. L., Anderson, W. P., & Dixon, W. A. (1993). Relationship between Anger Expression and Stress in Predicting Depression. *Journal of Counseling and Development, 72*, 91-94.

Cohen, J. (1977). Statistical power analysis for the behavioral sciences. New York: Academic Press.

Collins, N. L. (1996). Working models of attachment: Implications for explanation, emotion, and behavior. *Journal of Personality and Social Psychology, 71*, 810-832.

Collins, N. L., & Read, S. J. (1990). Adult attachment, working models and relationship quality in dating couples. *Journal of Personality and Social Psychology, 58*, 644-663.

Craig, T. J. (1982). An epidemiological study of problems associated with violence among psychiatric patients. *American Journal of Psychiatry, 139*, 1262-1266.

Crick, N. R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Childhood Development*, *67*, 2317-2327.

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*, 74-101.

Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms in reactive and proactive aggression. *Child Development, 67*, 993-1002.

Crick., N., R., & Grotpeter., J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66,* 710-722.

Crittenden, P. M. (1998). Dangerous behavior and dangerous contexts: A thirty-five year perspective on research on the developmental effects of child physical abuse. In P. Trickett (Ed.), *Violence to children* (pp.11-38). Washington, D.C: American Psychological Association.

D'Agostino., R. B., & Stephens., M. A. (1986). *Goodness of fit techniques.* New York: Marcel Dekker, Inc.

Dancey, C., & Reidy, J. (2004).Statistics without maths for psychology: Using SPSS for Windows. London: Prentice Hall.

Darwin, C. (1872/1998). *The expression of emotions in animals and man* (3rd ed.). London: Harper-Collins.

Davey, L., Day, A., & Howells, K. (2005). Anger, over-control and serious violent offending. *Aggression and Violent Behavior, 10*, 624-635.

Davis, D., Shaver, P. R., & Vernon, M. L. (2003). Physical, emotional, and behavioral reactions to breaking up: The roles of gender, age, emotional involvement, and attachment style. *Personality and Social Psychology Bulletin, 29*, 871-884.

Denham, S. A., Blair, K., Schmidt, M., & DeMulder, E. (2002). Compromised emotional competence: seeds of violence sown early? *American Journal of Orthopsychiatry, 72*, 70-82.

De Zulueta, F. (2003). *From pain to violence*. Whurr: London.

Diamond, L. M., & Hicks, A. M. (2005). Attachment style, current relationship security, and negative emotions: the mediating role of physiological regulation. *Journal of Social and Personal Relationships, 22*, 499-518.

Diamond, L. M., Hicks, A. M., & Otter-Henderson, K. (2006). Physiological evidence for repressive coping among avoidantly attached adults. *Journal of Social and Personal Relationships, 23*(2), 205-229.

Dibb, L. (2007). Toddlers are more physically aggressive than adults and become less aggressive as they learn to control their behaviour. *Medical News Today*

Retrieved October 24th 2007, from http://www.medicalnewstoday.com/articles/85628.php
Diehl, M., Elnick, A. B., Bourbeau, L. S., & Labouvie-Vief, G. (1998). Adult attachment styles: Their relations to family context and personality. *Journal of Personality and Social Psychology, 74*, 1656-1669.
DiGiuseppe, R., Eckhardt, C. I., Tafrate, R., & Robin, M. (1994). The diagnosis and treatment of anger in a cross-cultural context. *Journal of Social Distress and the Homeless, 3*, 229-261.
DiGuseppe, R., & Tafrate, R. (2003). Anger treatment for adults: A meta-analytic review. *Psychotherapy, 28*, 70-84.
DiGuseppe, R., & Tafrate, R. (2007). *Understanding anger disorders*. Oxford: Oxford University Press.
Dixon, A. (2003). At all costs let us avoid any risk of allowing our hearts to be broken again: A review of John Bowlby's forty four juvenile thieves. *Clinical Child Psychology and Psychiatry, 8*, 278-289.
Dodge, K. A., & Crick, N. R. (1990). Social information-processing bases of aggressive behaviour in children. *Personality and Social Psychology Bulletin, 16*, 8-22.
Dodge, K. A., & Newman, J. P. (1981). Biased decision making processes in aggressive boys. *Journal of Abnormal Psychology, 90*, 375-379.
Dollard, J., Doob, L., Miller, N., Mowrer, O., & Sears, R. (1939). *Frustration and aggression*. New Haven, CT: Yale University Press.
Dollard, J., Doob, L. W., Miller, N. E., Mowrer, O. H., & Sears, R. R. (1939). *Frustration and aggression*. New Haven, CT: Yale University Press.
Douglas, K. S., & Dutton, D. G. (2001). Assessing the link between stalking and domestic violence. *Aggression and Violent Behavior, 6*, 519-546.
Dozier, M., & Kobak, R. R. (1992). Psychophysiology in attachment interviews: Converging evidence for deactivating strategies. *Child Development, 63*, 1473-1480.
Dubourg, R., Hamed, J., & Thorns, J. (2005). *The economic and social costs of crime against individuals and households*. London: Home Office online report.
Dutton, D. G. (1999). Traumatic origins of intimate rage. *Aggression and Violent Behavior, 4*, 431-447.
Dutton, D. G. (2002). The neurobiology of abandonment homicide. *Aggression and Violent Behavior, 7*, 407-421.
Dutton, D. G., Saunders, K., Starzomski, A., & Bartholomew, K. (1994). Intimacy-anger and insecure attachment as precursors of abuse in intimate relationships. *Journal of Applied Social Psychology, 24*, 1367-1386.
Dutton, D. G., Starzomski, A., & Ryan, L. (1996). Antecedents of abusive personality and abusive behavior in wife assaulters. *Journal of Family Violence, 11*, 113-132.
Dutton, D. G., van Ginkel, C., & Landolt, M. A. (1996). Jealousy, intimate abusiveness, and intrusiveness. *Journal of Family Violence, 11*, 411-423.
Dyck, R. J., & Rule, B. G. (1978). Effect on retaliation of causal attributions concerning attack. *Journal of Personality and Social Psychology, 36*, 521-529.
Eames, V., & Roth, A. (2000). Patient attachment orientation and the early working alliance - A study of patient and therapist reports of alliance quality and ruptures. *Psychotherapy Research, 10*, 421-434.
Eckhardt, C. I., & Deffenbacher, J. L. (1995). Diagnoses of anger disorders. In H. Kassinove (Ed.), *Anger disorders: definitions, diagnosis, and treatment* (pp. 27-47). Washington, DC: Taylor & Francis.

Eisenberg, N., & Fabes, R. A. (1992). Emotion, regulation, and the development of social competence. In M. S. Clark (Ed.), *Review of personality and social psychology: emotion and social behavior* (Vol. 14 pp. 119-150). Newbury Park, CA: Sage.

Ekman, P. (1992). Are There Basic Emotions? *Psychological Review, 99*, 550-553.

Ekman, P. (2003). Emotions revealed: Recognizing faces and feelings to improve communication and emotional life. New York: Times Books.

Elgar. F. J., Knight, J., Worral, G. J., & Sherman, G. (2003). Attachment characteristics and behavioral problems in rural and urban juvenile delinquents. *Child Psychiatry and Human Development, 34,* 35-48.

Engebretson, T. D., Matthews, K. A., & Scheer, M. F. (1989). Relations between anger expression and cardiovascular reactivity: Reconciling inconsistent findings through a matching hypothesis. *Journal of Personality and Social Psychology, 57*, 513–521.

Erikson, E. H. (1950). *Childhood and society*. New York: Norton.

Eysenck, M. W., & Keane, M. T. (1995). *Cognitive Psychology: A Student's Handbook*. Hillsdale, NJ: Lawrence Erlbaum.

Farrington, D. P. (1991). Childhood aggression and adult violence: early precursors and later life outcomes. In D. J. Pepler & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 5-29). Hillsdale, NJ: Erlbaum.

Farrington, D. P. (1995). The development of offending and antisocial behaviour from childhood: Key findings from the Cambridge Study in Delinquent Development. *Journal of Child Psychology and Psychiatry, 36,* 929-964.

Farrington, D. P. (2000). Adolescent violence: Findings and implications from the Cambridge Study. In G. Boswell (Ed.), *Violent children and adolescents: Asking the question why.* (pp. 19-35). Philadelphia, PA: Whurr Publishers.

Farrington, D. P. (2001). Predicting adult official and self reported violence. In G. F. Pinard & L. Pagani (Eds.), *Clinical assessment of dangerousness: Empirical contributions* (pp. 66-88). New York: Cambridge University Press.

Farrington, D. P., Hollin, C. R., & McMurran, M. (2001). *Sex and violence: The psychology of crime and risk assessment*. London: Harwood Academic.

Faul, F., & Erdfelder., E. (1992). *GPOWER: A priori ,post hoc, and compromise power analysis for MS-DOS* [computer program]. Bonn, Germany: Bonn University.

Feeney, J. A. (1999). Adult attachment, emotional control, and marital satisfaction. *Personal Relationships, 6*, 169-185

Feeney, J. A., Noller, P., & Hanrahan, M. (1994). Assessing adult attachment: Developments in the conceptualization of security and insecurity. In M. B. Sperling & W. H. Berman (Eds.), *Attachment in adults: Theory, assessment, and treatment.* (pp. 128-152). New York: Guilford.

Feeney, J. A., Noller, P., & Roberts, N. (1999). Attachment and close relationships. In C. Hendrick & S. S. Hendrick (Eds.), *Close relationships: A sourcebook* (pp. 185-201). London: Sage Publications.

Feindler, E.L., Adler, N., Brooks, D., & Bhumitra, E. (1993). The development of the children's anger response checklist: CARC. In L. VanderCreek (Ed.), *Innovations in clinical practice* (Vol.12, pp.337-362). Sarasota, FL: Professional Resources Press.

Field, A., (2005). *Discovering statistics using SPSS*. London: Sage.

Fonagy, P. (1999). Male perpetrators of violence against women: An attachment theory perspective. *Journal of Applied Psychoanalytic studies, 1*, 7-27.

Fonagy, P. (2000). Attachment and borderline personality disorder. *Journal of the American Psychoanalytic Association, 48*, 1129-1146.
Fonagy, P. (2003). Towards a developmental understanding of violence. *British Journal of Psychiatry, 183*, 190-192.
Fonagy, P. (2004a). Early-life trauma and the psychogenesis and prevention of violence. In *Youth Violence: Scientific Approaches to Prevention* (Vol. 1036, pp. 181-200).
Fonagy, P. (2004b). The roots of social understanding in the attachment relationship: An elaboration on the constructionist theory. *Behavioral and Brain Sciences, 27*, 105-106.
Fonagy, P. (2004c). Understanding violence - Author's reply. *British Journal of Psychiatry, 184*, 361-361.
Fonagy, P., & Target, M. (2000). The place of psychodynamic theory in developmental psychopathology. *Development and Psychopathology, 12*, 407-425.
Fraley, R. C. (n.d.). *Research*. Retrieved January 31st 2010 from http://www.psych.uiuc.edu/~rcfraley/research.htm
Fraley, R. C., & Brumbaugh, C. C. (2004). A dynamical systems approach to understanding stability and change in attachment security. In W. S. Rholes & J. A. Simpson (Eds.), *Adult attachment : Theory, research, and clinical implications* (pp. 86-132). New York: Guilford Press.
Fraley, R. C., & Brumbaugh, C. C. (2007). The transference of attachment patterns: How parental and romantic relationships influence feelings toward novel people. *Personal Relationships, 14,* 513-530.
Fraley, R. C., Garner, J. P., & Shaver, P. R. (2000). Adult attachment and the defensive regulation of attention and memory: Examining the role of preemptive and postemptive defensive processes. *Journal of Personality and Social Psychology, 79*, 816-826.
Fraley, R. C., Niedenthal, P. M., Marks, M., Brumbaugh, C., & Vicary, A. (2006). Adult attachment and the perception of emotional expressions: Probing the hyperactivating strategies underlying anxious attachment. *Journal of Personality, 74*, 1163-1190.
Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology, 4*, 132-154.
Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology, 78*, 350-365.
Freud, S. (1932/1963). Why War? In P. Reiff (Ed.), *Freud: Character and culture* (pp. 134-147). New York: Collier.
Freud, S. (1961). The ego and the id. In J. Strachey (Ed.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 19, pp. 1-59). London: Hogarth Press.
Fromm, E. (1977). *The anatomy of human destructiveness*. Harmondsworth: Penguin.
Geen, R., & Donnerstein, E. (Eds.). (1998). *Human aggression: Theories, research, and implications for policy*. New York: Academic Press.
Geen, R. G., & McCown, E. J. (1984). Effects of noise and attack on aggression and physiological arousal. *Motivation and Emotion, 8*, 231-241.
George, C., Kaplan, N., & Main, M. (1985). The Adult Attachment Interview. Unpublished manuscript: University of California at Berkeley, Department of Psychology.

Gilligan, J. (2000). *Violence: Reflections on our deadliest epidemic*. London: Jessica Kingsley.
Gladue, B.A. (1991). Aggressive behavioral characteristics, hormones, and sexual orientation in men and women. *Aggressive Behavior, 17*, 313-326.
Goodall, J. (1995). Why Is It Unethical to Use Chimpanzees in the Laboratory. *Alternatives to Laboratory Animals, 23*, 615-620.
Gormley, B. (2005). An adult attachment theoretical perspective of gender symmetry in intimate partner violence. *Sex Roles, 52*, 785-795.
Gray, J. A. (1982). *The neuropsychology of anxiety*. Oxford: Oxford University Press.
Griffin, D., & Bartholomew, K. (1994). Models of the self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology, 67*, 430-445.
Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*, 511-524.
Henderson, A. J. Z., Bartholomew, K., Trinke, S. J., & Kwong, M. J. (2005). When loving means hurting: An exploratrion of attachment and intimate abuse in a community sample. *Journal of Family Violence, 20*, 219-230.
Hill-Smith, A. J., Hugo, P., Hughes, P., Fonagy, P., & Hartman, D. (2002). Adolescent murderers: abuse and adversity in childhood. *Journal of Adolescence, 25*, 221-230.
Hollin, C., & Bloxsom, C. A. J. (2007). Treatments for angry aggression. In T. W. T. A. Gannon, A. R. Beech, & D. Fisher (Ed.), *Aggressive offenders' cognition: Theory, research, and practice* Chichester: John Wiley & Sons.
Hollin, C. R. (1989). Psychology and crime: An introduction to criminological psychology. London: Routledge.
Hollin, C. R., & Bloxsom, C. A. J. (2006-2007). Treatments for angry aggression. In T. A. Gannon, T. Ward, A. R. Beech & D. Fisher (Eds.), *Aggressive offenders' Cognition: Theory, research and practice*.
Hollin, C. R., & Palmer, E. J. (2001). Skills Training. In C. R. Hollin (Ed.), *Handbook of offender assessment and treatment* (pp. 269-296). Chichester: Wiley.
Hollin, C. R., & Palmer, E. J. (in press?). Offending behaviour programmes: Development, application, and controversies. Chichester: Wiley.
Hollin, C. R., & Trower, P. (1986). Handbook of social skills training, Volume 1: Applications across the life span. Oxford: Pergamon Press.
Hollin, C. R., & Trower, P. (1986). Handbook of social skills training, Volume 2: Clinical applications and new directions. Oxford: Pergamon Press.
Holtzworth-Munroe, A., Rehman, U., & Herron, K. (2001). General and spouse-specific anger and hostility in subtypes of maritally violent men and nonviolent men. *Behavior Therapy, 31*, 603-630.
Holtzworth-Munroe, A., Stuart, G. L., & Hutchinson, G. (1997). Violent versus nonviolent husbands: Differences in attachment patterns, dependency and jealousy. *Journal of Family Psychology, 11*, 314-331.
Home Office. (2005). *Crime in England and Wales*. London: Home Office.
Home Office. (2008). *Crime in England and Wales*. London: Home Office.
Home Office/Youth Justice Board. (2002). Final warning scheme: Guidance for the police and youth offending teams. London: Home Office.
Howells, K. (2004). Anger and its links to violent offending. *Psychiatry, Psychology and Law, 11*, 189-196.

Howells, K., & Day, A. (2006). Affective determinants of treatment engaement in violent offenders. *International Journal of Offender Therapy and Comparative Criminology, 50*, 174-186.
Howells, K., & Hollin, C. (1989). *Clinical approaches to violence*. London: John Wiley.
Hudson, S. M., & Ward, T. (1997). Intimacy, loneliness, and attachment style in sexual offenders. *Journal of Interpersonal Violence, 12*, 323-339.
Huesmann, L. R. (1988). An Information-Processing Model for the Development of Aggression. *Aggressive Behavior, 14*, 13-24.
Huesmann, L. R. (1998). The role of social information processing and cognitive schema on the acquisition and maintenence of habitual aggressive behavior. In R. G. Geen, & Donnerstein, E. (Ed.), *Human aggression: Theories, research, and implications for social policy*. San Diego, CA: Academic Press.
Izard, C. E. (1977). *Human Emotions*. New York: Plenum Press.
Johnson, T. E., & Rule, B. G. (1986). Mitigating circumstance information, censure, and aggression. *Journal of Personality and Social Psychology, 50*, 537-542.
Julkunen, J., Salonen, R., Kaplan, G. A., Chesney, M. A., & Salonen, J. T. (1994). Hostility and the progression of carotid atherosclerosis'. *Psychosomatic Medicine, 56*, 519–525.
Kassinove, H., & Sukhodolsky, D. G. (1995). Anger disorders, basic science and practice issues. In H. Kassinove (Ed.), *Anger disorders: Definition, diagnosis and treatment* (pp. 1-26). Washington DC: Taylor & Francis.
Kesner, J. E., Julian, T., & McKenry, P. C. (1997). Application of attachment theory to male violence toward female intimates. *Journal of Family Violence, 12*, 211-228.
Ketterer, M. W. (1996). Anger and myocardial infarction. *Circulation, 94*, 1788-1789.
Kidd, T., & Sheffield, D. (2005). Attachment style and symptom reporting: Examining the mediating effects of anger and social support. *British Journal of Health Psychology, 10*, 531-541.
Kotler, M., Finkelstein, G., Molcho, A., Botsis, A. J., Plutchik, R., Brown, S. L., et al. (1993). Correlates of suicide and violence risk in an inpatient population: coping styles and social support. . *Psychiatry Research, 47*, 281-290.
Kremer, J. F., & Stephens, L. (1983). Attributions and arousal as mediators of mitigation's effect on retaliation. *Journal of Personality and Social Psychology, 45*, 335-343.
Kubzansky, L. D., Cole, S. R., Kawachi, I., Vokonas, P., & Sparrow, D. (2006). Shared and unique contributions of anger, anxiety, and depression to coronary heart disease: A prospective study in the normative aging study. *Annals of Behavioral Medicine, 31*, 21-29.
Kubzansky, L. D., & Kawachi, I. (2000). Going to the heart of the matter: do negative emotions cause coronary heart disease? *Journal of Psychosomatic Research, 48*, 323-337.
Lafontaine, M. F., & Lussier, Y. (2005). Does anger towards the partner mediate and moderate the link between romantic attachment and intimate violence? *Journal of Family Violence, 20*, 349-361.
Lawrence, C., & Andrews, K. (2004). The influence of perceived prison crowding on male inmates' perception of aggressive events. *Aggressive Behavior, 30*, 273-284.
Lazarus, R. S. (1966). *Psychological stress and the coping process*. New York: McGraw-Hill.

Lazarus, R. S. (1991). *Emotion and adaptation*. London: Oxford University Press.
Lemerise, E. A., & Dodge, K. A. (1993). The development of anger and hostile intentions. In M. Lewis & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 537-546). New York: The Guilford Press.
Lemerise, E. A., & Dodge, K. A. (2000). The development of anger and hostile interactions. In M. Lewis & J. M. Haviland-Jones (Eds.), *Handbook of Emotions* (2 ed., pp. 594-606). New York: Guilford.
Levey, S., & Howells, K. (1990). Anger and its management. *Journal of Forensic Psychiatry, 1*, 305-327.
Levinson, A., & Fonagy, P. (2004). Offending and attachment: the relationship between interpersonal awareness and offending in a prison population with psychiatric disorder. *Canadian Journal of Psychoanalysis, 12,* 225-251.
Levy, M. B., & Davis, K. E. (1998). Lovestyles and attachment styles compared: Their relations to each other and to various relationship characteristics. *Journal of Social and Personal Relationships, 5* 439-471.
Loeber, R. L., & Farrington, D. P. (Eds.) (2001). *Child delinquents: Development, intervention, and service needs.* Thousand Oaks: CA: Sage.
Loeber, R. L., Farrington, D. P., & Waschbusch, D. A. (1998). Serious and violent juvenile offenders. In R. L. Loeber & D. P. Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful interventions.* (pp. 13-29). Thousand Oaks, CA: Sage.
Lopez, F. G., Gover, M. R., Leskela, J., Sauer, E. M., Schirmer, L., & Wyssmann, J. (1997). Attachment styles, shame, guilt, and collaborative problem-solving orientations. *Personal Relationships, 4*, 187-199.
Lorenz, K. (1966). *On aggression*. London: Methuen.
Lyn, T. S., & Burton, D. L. (2004). Adult attachment and sexual offender status. *American Journal of Orthopsychiatry, 74*, 150-159.
Magai, C., Hunziker, J., Mesias, W., & Culver, L. C. (2000). Adult attachment styles and emotional biases. *International Journal of Behavioral Development, 24*(3), 301-309.
Magdol, L., Moffitt, T. E., Caspi, A., Newman, D. L., Fagan, J., & Silva, P. A. (1997). Gender differences in partner violence in a birth cohort of 21-year olds: Bridging the gap between clinical and epidemiological approaches. *Journal of Consulting and Clinical Psychology, 65*, 68-78.
Mahalik, J. R., Aldarondo, E., Gilbert-Gokhale, S., & Shore, E. (2005). The role of insecure attachment and gender role stress on predicting controlling behaviors in men who batter. *Journal of Interpersonal Violence, 20*, 617-631.
Main, M. (1995). Attachment: Overview with implications for clinical work. In S. Goldberg, Muir, R., & Kerr, J. (Ed.), *Attachment theory: Social, developmental, and clinical perspectives.* (pp. 407-474). Hillsdale, NJ: Erlbaum.
Main, M., & Goldwyn, R. (1984). Adult attachment scoring and classification system: Unpublished manuscript, University of California at Berkeley.
Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), *Growing points in attachment theory and research: Monographs of the Society for Research in Child Development* (Vol. 50 Serial number 209, pp. 66-104).
Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In M. T. Greenberg, D. Cicchetti & E. M. Cummings (Eds.), *Attachment in the preschool*

years: Theory, research and intervention (pp. 95-124). Chicago: University of Chicago Press.
Marsa, F., O'Reilly, G., Carr, A., Murphy, P., O'Sullivan, M., Cotter, A., et al. (2004). Attachment styles and psychological profiles of child sex offenders in Ireland. *Journal of Interpersonal Violence, 19*, 228-251.
Mauricio, A. M., & Gormley, B. (2001). Male perpetration of physical violence against female partners- The interaction of dominance needs and attachment insecurity. *Journal of Interpersonal Violence, 16*, 1066-1081.
Mayseless, O. (1991). Adult attachment patterns and coutship violence. *Family Relations, 40*, 21-28.
McClellan, A. C., & Killeen, M. R. (2000). Attachment theory and violence toward women by male intimate partners. *Journal of Nursing Scholarship, 32*, 353-360.
McCrae, R.M., & John, O.P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*, *60*, 175–215.
McElhaney., K. B., Immele, A., Smith., F. D., & Allen., J. P. (2006). Attachment organization as a moderator of the link between friendship quality and adolescent delinquency. *Attachment and Human Development, 8,* 33-46.
McGuire, J. (2004). *Understanding psychology and crime.* Berkshire: Open University Press.
Mednick, S. A., Pollock, V., Volavka, J., & Gabrielli, W. F. (1982). Biology and violence. In M. E. Wolfgang & N. A. Wiener (Eds.), *Criminal violence* (pp. 21-80). Beverly Hills, CA: Sage Publications.
Megargee, E. I. (1966). Undercontrolled and over-controlled personality types in extreme antisocial aggression. *Psychological Monographs, 80*, 1-29.
Megargee, E. I. (1973). Recent research on overcontrolled and undercontrolled personality patterns among violent offenders. *Sociological Symposium, 9*, 37-50.
Megargee, E. I. (1982). Psychological determinants and correlates of criminal violence. In M. E. Wolfgang, & Winer, N.A. (Ed.), *Criminal violence* (pp. 81-170). Beverly Hills: CA: Sage Publications.
Merikangas, J. R. (1981). The neurology of violence. In J. R. Merikangas (Ed.), *Brain-behaviour relationships* (pp. ADD). Lexington, MA: Lexington Books.
Mikulincer, M. (1995). Attachment style and the mental representation of the self. *Journal of Personality and Social Psychology, 69*, 1203-1215.
Mikulincer, M. (1997). Adult attachment style and information processing: Individual differences in curiosity and cognitive closure. *Journal of Personality and Social Psychology, 72*, 1217-1230.
Mikulincer, M. (1998). Adult attachment style and individual differences in functional versus dysfunctional experiences of anger. *Journal of Personality and Social Psychology, 74*, 513-524.
Mikulincer, M., Birnbaum, G., Woddis, D., & Nachmias, O. (2000). Stress and the accessibility of proximity-related thoughts: Exploring the normative and intraindividual components of attachment theory. *Journal of Personality and Social Psychology, 78*, 509-523.
Mikulincer, M., & Florian, V. (1998). The relationship between adult attachment syles and emotional and cognitive reactions to stressful events. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 143-165). New York: Guilford Press.
Mikulincer, M., Florian, V., & Weller, A. (1993). Attachment styles, coping strategies, and post-traumatic psychological distress: The impact of the Gulf War in Israel. *Journal of Personality and Social Psychology, 64*, 817-826.

Mikulincer, M., Gillath, O., & Shaver, P. R. (2002). Activation of the attachment system in adulthood: Threat-related primes increase the accessibility of mental representations of attachment figures. *Journal of Personality and Social Psychology, 83*, 881-895.

Mikulincer, M., Hirschberger, G., Nachmias, O., & Gillath, O. (2001). The affective component of the secure base schema: Affective priming with representations of attachment security. *Journal of Personality and Social Psychology, 81*, 305-321.

Mikulincer, M., & Nachshon, O. (1991). Attachment styles and patterns of self disclosure. *Journal of Personality and Social Psychology, 61*, 321-331.

Mikulincer, M., & Orbach, I. (1995). Attachment styles and repressive defensiveness: The accessibility and architecture of affective memories. *Journal of Personality and Social Psychology, 68*, 917-925.

Mikulincer, M., & Shaver, P. (2007). *Attachment in adulthood: structure, dynamics, and change*. New York: Guilford Press.

Mikulincer, M., & Shaver, P. R. (2001). Attachment theory and intergroup bias: Evidence that priming the secure base schema attenuates negative reactions to out-groups. *Journal of Personality and Social Psychology, 81*, 97-115.

Mikulincer, M., & Shaver, P. R. (2003). The attachment behavioral system in adulthood: Activation, psychodynamics, and interpersonal processes. *Advances in Experimental Social Psychology, 35*, 53-152.

Mikulincer, M., & Shaver, P. R. (2005). Attachment theory and emotions in close relationships: Exploring the attachment-related dynamics of emotional reactions to relational events. *Personal Relationships, 12*, 149-168.

Mikulincer, M., Shaver, P. R., Gillath, O., & Nitzberg, R. A. (2005). Attachment, caregiving, and altruism: Boosting attachment security increases compassion and helping. *Journal of Personality and Social Psychology, 89*, 817-839.

Mikulincer, M., Shaver, P. R., & Pereg, D. (2003). Attachment theory and affect regulation: The dynamics, development, and cognitive consequences of attachment-related strategies. *Motivation and Emotion, 27*, 77-102.

Miller, T. Q., Smith, T. W., Turner, C. W., Guijarro, M. L., & Hallet, A. J. (1996). A meta-analytic review of research on hostility and physical health. *Psychological Bulletin, 119*, 322-348.

Moffitt, T. E. (1993). Adolescence-limited and life-course persistent antisocial behaviour: A developmental taxomomy. *Psychological Review, 100*, 674-701.

Moffitt, T. E., Caspi, A., Rutter, M., & Silva, P. A. (2001). Sex differences in antisocial behaviour: Conduct disorder, delinquency and violence in the Dunedin longitudinal study. Cambridge: Cambridge University Press.

Monahan, J., & Steadman, H. J. (1994). *Violence and mental disorder: Developments in risk assessment*. Chicago, IL: University of Chicago Press.

Monahan, J., Steadman, H. J., Silver, E., Appelbaum, P. S., Robbins., P. C., Mulvey, E. P., et al. (2001). *Rethinking risk assessment: The MacArthur study of mental disorder and violence*. Oxford: Oxford University Press.

Moore, K., Moretti, M. M., & Holland, R. (1998). A new perspective on youth care programs: using attachment theory to guide interventions for troubled youth. *Residential Treatment for Children and Youth, 15*, 1-24.

Moyer, K. E. (1968). Kinds of aggression and their physiological basis. *Communications in Behavioural Biology*, *2*, 65-68.

Murray, J., Irving, B., Farrington., D. P., Coleman, I., & Bloxsom, C. A. J. (2008a, September). *Early risk factors for adult criminal behaviour in a 30-year*

longitudinal study. Paper presented at the conference of the life history research society, Bad Nauheim, Germany.
Murray, J., Irving, B., Farrington., D. P., Coleman, I., & Bloxsom, C. A. J. (2008b, June). *Early risk factors for adult criminal behaviour in a 30-year longitudinal study.* Paper presented at the International Symposium on Violence and Mental Health, Sao Paulo, Brazil.
Murray, J., Irving, B., Farrington., D. P., Coleman, I., & Bloxsom, C. A. J. (under review). Very early predictors of conduct problems and crime: Results from the 1970 British Birth Cohort Study. *Journal of Child Psychology and Psychiatry.*
Myers, W. C., Gooch, E., & Meloy, J. R. (2005). The role of psychopathy and sexuality in a female serial killer. *Journal of Forensic Sciences, 50*, 652-657.
Nelson, W.M., & Finch, A.J., (2000). *Children's inventory of anger (CHIA): Manual.* Los Angeles, CA: Western Psychological Services.
Niedenthal, P. M., Brauer, M., Halberstadt, J. B., & Innes-Ker, A. H. (2001). When did her smile drop? Facial mimicry and the influences of emotional state on the detection of change in emotional expression. *Cognition & Emotion, 15*(6), 853-864.
Nisbett, R. E., & Ross, L. (1980). *Human inference: Strategies and shortcomings of social judgement*. Englewood Cliffs, NJ: Prentice-Hall.
Novaco, R. W. (1975). Anger control: The development and evaluation of an experimental treatment. Lexington, MA: Lexington books.
Novaco, R. W. (1976). The functions and regulation of the arousal of anger. *American Journal of Psychiatry, 133*, 1124-1128.
Novaco, R. W. (1986). Anger as a clinical and social problem. In R. Blanchard & C. Blanchard (Eds.), *Advances in the study of aggression* (Vol. 2). New York: Academic Press.
Novaco, R. W. (1992). A contextual perspective on anger with relevance to blood pressure. In E. H. Johnson, W. D. Gentry & S. Julius (Eds.), *Personality, elevated blood pressure, and essential hypertension*. Washington: Hemisphere.
Novaco, R. W. (1994). Anger as a risk factor for violence among the mentally disordered. In J. Monahan & H. J. Steadman (Eds.), *Violence and mental disorder: developments in risk assessment* (pp. 21-59). Chicago, IL: University of Chicago Press Ltd.
Novaco, R. W. (1997). Remediating anger and aggression with violent offenders. *Legal and Criminological Psychology, 2*, 77-88.
Novaco, R. W. (2003). *The Novaco anger scale and provocation inventory manual (NAS-PI)*. Los Angeles: Western Psychological Services.
Novaco, R. W., & Welsh, W.N. (1989). Anger disturbances: Cognitive mediation and clinical prescriptions. In K. Howells, & Hollin, C.R. (Ed.), *Clinical Approaches to Violence*. Chichester: John Wiley & Sons.
Novaco, R. W., & Taylor, J. L. (2004). Assessment of anger and aggression among male offenders with developmental disabilities. *Psychological Assessment, 16*, 42-50.
Novaco, R. W., & Welsh, W. N. (1989). Anger disturbances: Cognitive mediation and clinical prescriptions. In K. Howells & C. R. Hollin (Eds.), *Clinical Approaches to Violence* (pp. 39-60). London: John Wiley.
Office for National Statistics (2006). *Crime: Four in five offenders are male.* Retrieved January 31st 2010 from http://www.statistics.gov.uk/CCI/nugget.asp?ID=442.
Pallant, J. (2007). SPSS survival manual: A step-by-step guide to data analysis using SPSS version 15. London: Open University Press.

Parrott, D. J., & Giancola, P. R. (2004). A further examination of the relation between trait anger and alcohol-related aggression: The role of anger control. *Alcoholism: Clinical and Experimental Research, 28*, 855-864.

Pedersen, C. A. (2004). Biological aspects of social bonding and the roots of human violence. In *Youth Violence: Scientific Approaches to Prevention* (Vol. 1036, pp. 106-127).

Plutchik, R. (1980). A general psychoevolutionary theory of emotion. In R. Plutchik & H. Kellerman (Eds.), *Emotion: Theory, research and experience: Vol 1. Theories of emotion* (pp. 3-31). New York: Academic Press.

Preacher, K., J., & Leonardelli., G.J. (2003). *Calculation for the Sobel Test*. Retrieved January 31st 2010 from http//people.ku.edu/~preacher/sobel/sobel.htm

Rahman., M.M., & Govindarajulu., G. (1997). A modification of the test of Shapiro and Wilk for normality. *Journal of Applied Statistics, 24,* 219-235.

Rice, M. E., Harris, G. T., Quinsey, V. L., & Cyr, M. (1990). Planning treatment programs in secure psychiatric facilities. In D. N. Weisstub (Ed.), *Law and mental health: International perspectives* (Vol. 5, pp. 162-230). New York: Pergamon Press.

Ritter, P., Lorig., K., Laurent., D., & Matthews, K. (2004). Internet versus mailed questionnaires: A randomized comparison. *Journal of Medical Internet Research, 6,* 29.

Robins, S., & Novaco, R. W. (1999). Systems conceptualization and treatment of anger. *Journal of Clinical Psychology, 55*, 325-337.

Ross., E. C., Polaschek., D. L. L., & Ward, T. (2008). The therapeutic alliance: A theoretical revision for offender rehabilitation. *Aggression and Violent Behavior, 13,* 462-480.

Ross, T., & Pfäfflin, F. (2004). Violence and Attachment: Attachment styles, self-regulation, and interpersonal problems in a prison population. In F. Pfäfflin & G. Adshead (Eds.), *A matter of security: The application of attachment theory to forensic psychiatry and psychotherapy.* London: Jessica Kingsley.

Rumelhart, D. E., McClelland, J. L., & Group., T. P. R. (1986). *Parallel distributed processing* (Vol. 1). Cambridge, MA: MIT Press.

Russell, G. W., & Arms, R. L. (1995). False consensus effect, physical aggression, anger, and a willingness to escalate a disturbance. *Aggressive Behavior, 21*, 381-386.

Schachter, S., & Singer, J. (1969). Cognitive, social, and physiological determinants of emotional state. *Psychological Review, 69*, 379-399.

Selby, M. J. (1984). Assessment of violence potential using measures of anger, hostility, and social desirability. *Journal of Personality Assessment, 48*, 531-544.

Shanks, D. R., & St. John, M. F. (1994). Characteristics of dissociable human learning systems. *Behavioral and Brain Sciences, 17*, 367-447.

Shaver, P. R., Belsky, J., & Brennan, K. A. (2000). The adult attachment interview and self-reports of adult attachment: Associations across domains and methods. *Personal Relationships, 7*, 25-43.

Shaver, P. R., & Clarke, C. L. (1994). The psychodynamics of adult romantic attachment. In J. M. Masling & R. F. Bornstein (Eds.), *Empirical perspectives on object relations theory: Empirical studies of psychoanalytic theories* (pp. 105-156). Washington, DC: American Psychological Association.

Shaver, P. R., & Hazan, C. (1993). Adult romantic attachment: Theory and evidence. In D. Perlman & W. Jones (Eds.), *Advances in Personal Relationships* (Vol. 4, pp. 29-70). London: Jessica Kingsley.

Shaver, P. R., Hazan, C., & Bradshaw, D. (1988). Love as attachment: The integration of three behavioural systems. In R. J. Sternberg, & Barnes, M. (Ed.), *The psychology of love* (pp. 68-99). New Haven: CT: Yale University Press.
Shaver, P. R., & Mikulincer, M. (2002). Attachment-related psychodynamics. *Attachment and Human Development, 4*, 133-161.
Shelley, E. L. V., & Toch, H. H. (1968). The perception of violence as an indicator of adjustment in institutionalised offenders. In H. Toch & H. C. Smith (Eds.), *Social perception: The development of interpersonal impressions. An enduring problem in psychololgy.* Princeton, NJ.: D. Van Nostrand.
Shields, I.W., & Simourd, D. J. (1991). Predicting predatory behaviour in a population of incarcerated young offenders. *Criminal Justice and Behaviour, 26,* 90-106.
Siann, G. (1985). Accounting for aggression: Perspectives on aggression and violence. London: Allen & Unwin.
Siegel, J.M. (1986). The multidimensional anger inventory. *Journal of Personality and Social Psychology, 51,* 191-200.
Simons, K.J., Paternite, C.E., & Shore, C. (2001). Quality of parent/adolescent attachment and aggression in young adolescents. *Journal of Early Adolescence, 21,* 182-203.
Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology, 59*, 971-980.
Simpson, J. A., & Rholes, W. S. (2002). Fearful-avoidance, disorganization, and multiple working models: Some direction for future theory and research. *Attachment & Human Development, 4*, 223-229.
Simpson, J. A., Rholes, W. S., & Phillips, D. (1996). Conflict in close relationships: An attachment perspective. *Journal of Personality and Social Psychology, 71*, 899-914.
Smallbone, S. W., & Dadds, M. R. (1998). Childhood attachment and adult attachment in incarcerated adult male sex offenders. *Journal of Interpersonal Violence 13*, 555–573.
Smith, C. A., & Lazarus, R. S. (1993). Appraisal components, core relational themes, and the emotions. *Cognition and Emotion, 7*, 233-269.
Sobel., M.E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhardt (Ed.), *Sociological Methodology* (pp.290-312). Washington DC: American Sociological Association.
Sperling, M. B., & Berman, W. H. (Eds.). (1994). Attachment in adults: Clinical and developmental perspectives. New York: Guilford Press.
Spielberger, C. D. (1988). *Manual for the state trait anger expression inventory-2*. Odessa, F.L: Psychological Assessment Resources.
Spielberger, C. D. (1999). *Manual for the state trait anger expression inventory*. Odessa, F.L: Psychological Assessment Resources.
SPSS Inc. (1999). *SPSS base 10.0 for Windows User's Guide*. SPSS Inc., Chicago, IL.
Stackert, R. A., & Bursik, K. (2003). Why am I unsatisfied? Adult attachment style, gendered irrational relationship beliefs, and young adult relationship satisfaction. *Personality and Individual Differences, 34*, 1419-1429.
Stevens, J. (1996). Applied multivariate statistics for the social sciences. (3rd ed). Mahwah, NJ: Lawrence Erlbaum.
Strauss, B., & Lobo-Drost, A. (2001). *Adult Attachment Prototype Rating (AAPR): A method to assess attachment patterns in adults*. Manual no publicado, Universidad de Jena, Jena, Alemania.

Strauss, M. M., Makris, N., Aharon, I., Vangel, M. G., Goodman, J., Kennedy, D. N., et al. (2005). fMRI of sensitization to angry faces. *Neuroimage, 26*, 389-413.
Stroufe, L. A., & Waters, E. (1977). Attachment as an organizational construct. *Child Development, 48*, 1184-1199.
Suter, J. M., Byrne, M. K., Byrne, S., Howells, K., & Day, A. (2002). Anger in prisoners: women are different from men. *Personality and Individual Differences, 32*, 1087-1100.
Swaffer, T., & Hollin, C. R. (2000). Anger and impulse control. In R. Newell & K. Gournay (Eds.), *Mental health nursing: An evidence based approach* (pp. 265-290). New York: Churchill Livingstone.
Swaffer, T., & Epps., K.J. (1999). The psychometric assessment of anger in male and female adolexcents resident at a secure youth treatment centre. *Journal of adolescence, 22,* 419-422.
Swaffer, T., & Hollin, C. R. (2001). Anger and general health in young offenders. *Journal of Forensic Psychiatry 12*, 90-103.
Tabachnick., B.G., & Fidell., L.S. (2007). *Using multivariate statistics. 5th ed*. Boston: Allyn and Bacon.
Tedeschi, J. T., & Felson, R. B. (1994). *Violence, aggression, and coercive actions*. Washington, D.C.: American Psychological Association.
Timmerman, I. G. H., & Emmelkamp, P. M. G. (2005). An integrated cognitive-behavioural approach to the aetiology and treatment of violence. *Clinical Psychology & Psychotherapy, 12*, 167-176.
Timmerman, I. G. H., & Emmelkamp, P. M. G. (2006). The relationship between attachment styles and Cluster B personality disorders in prisoners and forensic inpatients. *International Journal of Law and Psychiatry, 29*, 48-56.
Toch, H. (1979). *Psychology of crime and criminal justice*. London: Holt, Rinehart & Winston.
Tremblay, P.E., Graham., K., & Wells, S. (2008). Severity of physical aggression reported by university students: A test of the interaction between trait aggression and alcohol consumption. *Personality and Individual Differences, 45,* 3-9.
Turner, P. T. (1991). Relations between attachment, gender, and behaviour with peers in preschool. *Child Development, 62*, 1475-1488.
Twemlow, S. W. (2003). A crucible for murder: The social context of violent children. *Psychoanalytic Quarterly, 72*, 659-698.
Van Ijzendoorn, M. H., Feldbrugge, J. T. T. M., Derks, F. C. H., DeRuiter, C., Verhagen, M. F. M, Phillipse, M. W. G., *et al.* (1997). Attachment representations of personality disordered criminal offenders. *American Journal of Orthopsychiatry, 67*, 449-459.
Wampler, R. S., & Downs, A. B. (2009). Parent and peer attachment in minority males at high risk for delinquency. *Clinical Social Work Journal, 39,* DOI: 10.1007/s10615-009-0238-9.
Wang, E.W., & Diamond, P.M. (1999). Empirically identifying factors related to violence risk in corrections. *Behavioral Sciences and the Law, 17,* 377-389.
Ward, T., Day, A., Howells, K., & Birgden, A. (2004). The multifactor offender readiness model. *Aggression and Violent Behavior, 9*, 645-673.
Ward, T., Hudson, S. M., & Marshall, W. L. (1996). Attachment style in sex offenders: A preliminary study. *Journal of Sex Research, 33*, 17-26..
Wearden, A., Lamberton, N., Crook, N., & Walsh, V. (2005). Adult attachment, alexithymia and symptom reporting: An extension to the four category model of attachment. *Journal of Psychosomatic Research, 58,* 279-288.

West M., & Sheldon-Keller A. (1992). The assessment of dimensions relevant to adult reciprocal attachment. *Canadian Journal of Psychiatry, 37,* 600-606.

West, M., Sheldon, A., & Reiffer, L. (1987). An approach to the delineation of adult attachment scale development and reliability. *Journal of Nervous and Mental Disorder*s, *175,* 738–741.

Williams, T.W., Boyd, J.C., Cascardi, M.A., & Poythress, N. (1996). Factor structure and convergent validity of the Aggression Questionnaire in an offender population. *Psychological Assessment, 8,* 398-403.

Wolfgang, M. E., & Wiener, N. A. (1982). *Criminal violence*. Beverly Hills, CA: Sage Publications.

World Health Organization. (2002). *World report on violence and health*. Geneva: Author.

Wright, C. I., Martis, B., Shin, L. M., Fischer, H., & Rauch, S. L. (2002). Enhanced amygdala responses to emotional versus neutral schematic facial expressions. *Neuroreport, 13*, 785-790.

Youth Offender Case Disposal Gravity Factor System. *Home Office Crime and Disorder Act, final warning scheme: Annex C* (1998). Retrieved January 31st 2010 from http://www.nationalarchives.gov.uk/ERORecords/HO/421/2/cdact/finalann.htm#ANNEX%20C

Zamble, E., & Quinsey, V. L. (1997). *The criminal recidivism process*: Cambridge University Press.

Zillman, D. (1979). *Hostility and aggression.* . Hillsdale, NJ: Erlbaum.

Zillmann, D. (1971). Excitation transfer in communication-mediated aggressive behaviour. *Journal of Experimental Social Psychology, 7*, 419-434.

Zillmann, D. (1979). *Hostility and aggression*. Hillsdale, NJ: Lawrence Erlbaum.

Zillmann, D. (1983). Arousal and aggression. In R. G. Geen, & Donnerstein, E.I. (Ed.), *Aggression: Theoretical and empirical reviews*. New York: Academic Press.

Zillmann, D., & Bryant, J. (1974). Effect of residual excitation on the emotional response to provocation and delayed aggressive behaviour. *Journal of Personality and Social Psychology, 30*, 782-791.