

**ATTACHMENT TO CAREGIVERS AND PSYCHOPATHIC
CHARACTERISTICS AMONG ADOLESCENTS AT RISK
FOR AGGRESSION**

by

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ABSTRACT

There has been a longstanding interest in adult psychopathy, both in research studies and clinical writings. However, only recently has the study of youth psychopathy garnered attention. Researchers are particularly interested in basic questions about the early course of psychopathy, however little work has investigated the role that attachment plays in this disorder. This dissertation investigated the relationships between adolescent-caregiver attachment patterns and psychopathic traits. Specifically, it was hypothesized that adolescents exhibiting the interpersonal and affective disturbances of psychopathy would demonstrate insecure attachment patterns characterized by a deactivation of the attachment system and marked by low anxiety and high avoidance (dismissing attachment). Participants were 109 adolescent boys and girls from two locations in British Columbia: a mental health assessment centre and two youth custody centres. Results indicated that the affective factor of psychopathy was associated with insecure attachment for both genders. Differential relationships emerged for boys and girls. For boys, higher PCL:YV total and Factor 4 scores were associated with dismissing attachment and lower attachment anxiety. For girls, however, the relationship was reversed. Girls with higher PCL:YV total and Factor 4 scores had higher attachment anxiety and less attachment dismissiveness. Implications for the construct of psychopathy are discussed.

Keywords: psychopathy; adolescence; attachment; forensic; clinical; developmental; aggression

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List of Abbreviations

| | |
|-----------|---|
| Att. Anx. | Attachment Anxiety |
| Att. Avo. | Attachment Avoidance |
| ADHD | Attention Deficit Hyperactivity Disorder |
| APSD | Antisocial Process Screening Device |
| CD | Conduct Disorder |
| CP | Conduct Problems |
| CPS | Childhood Psychopathy Scale |
| CU | Callous-Unemotional |
| DICA-IV | Diagnostic Interview for Children and Adolescents – IV |
| DSM-IV-TR | Diagnostic and Statistical Manual of Mental Disorders – 4 th edition (text revision) |
| FFM | Five Factor Model |
| HIA | Hyperactivity/Impulsivity/Attention Problems |
| IQ | Intelligence Quotient |
| MMR | Moderated Multiple Regression |
| PCL-R | Psychopathy Checklist - Revised |
| PCL:SV | Psychopathy Checklist: Screening Version |
| PCL:YV | Psychopathy Checklist: Youth Version |
| SES | Socio-economic Status |
| VIQ | Verbal Intelligence Quotient |

INTRODUCTION

There has been a longstanding interest in adult psychopathy, both in research studies and clinical writings (e.g., Cleckley, 1941; Hare, 1991). However, only recently has the study of youth psychopathy garnered attention. Researchers are particularly interested in basic questions about the early course of psychopathy. Some research suggests potential behavioural risk factors for psychopathy in youth. Less research, however, has focussed on the role that a child's environment, including relationships with caregivers, may play in the development of psychopathy.

There are many reasons why the study of environmental and family factors is important when one considers the development of psychopathy. Considerable research in developmental psychology and psychopathology highlights the central importance of caregiver-child relationships in determining the course of development in both normative and clinical samples (e.g., Bowlby, 1969; Sroufe, Fox, & Pancake, 1983). A child's experiences in their family play a central role in how that child develops, as do other close relationships. To study the role that a person's close relationships play in their development, the construct of attachment is often used. Initially proposed by Bowlby (1969), attachment refers to an individual's lasting bonds with others and patterns of relating to others, initially to caregivers in infancy, and then generalizing to other close relationships. The theory holds that the quality of a child's attachment is a direct function of experiences with caregivers – specifically the extent to which the child perceives the caregiver to be a reliably available figure. Based on experiences in relationships with

caregivers, children develop internal working models of close relationships, which serve to guide both their perceptions and expectations of future interactions, and also guide their own sense of worth and/or lovability in the context of these relationships.

There is good reason to think that attachment, and specifically, insecure forms of attachment may be associated with psychopathy. Emotion dysregulation and lack of empathy, both hallmarks of psychopathy, have been associated with insecure attachment in childhood and adolescence (Kobak & Sceery, 1988; LaFreniere & Sroufe, 1985; Saltaris, 2002). Family environment is also a key factor in the understanding of trajectories to both externalizing behaviours and criminality (Levy & Orlans, 2000). Two studies have examined adolescent males' self-report of closeness with parents and psychopathic characteristics. Kosson, Cyterski, Steuerwald, Neumann, and Walker-Matthews (2002) found that adolescent males on probation who had higher psychopathy scores reported less closeness ("attachment") to parents. More recently, Flight and Forth (2007) found that incarcerated adolescent males with higher PCL:YV total scores reported less closeness with fathers, but not mothers. These are interesting findings, but there is a clear need for more research investigating the role that attachment plays in psychopathy (Farrington, 2005). The present research examines this relationship.

Specifically, this research investigates the relationships between adolescent-caregiver attachment patterns and psychopathic characteristics among adolescent males and females in both a forensic and a mental health setting. It is hypothesized that adolescents exhibiting the interpersonal and affective disturbances of psychopathy will more commonly exhibit attachment patterns characterized by deactivation of the attachment system, or dismissing attachment, which is characterized by high avoidance

of interpersonal closeness and low levels of anxiety about relationships. In this introduction, I will (1) define the concept of psychopathy, and briefly highlight relevant research on adult psychopathy, (2) review existing literature on youth psychopathy and identify key gaps in knowledge, (3) introduce the concept of attachment, discussing its importance in the study of psychopathy, and (4) outline the hypotheses of the present research.

Psychopathy

Psychopathy is generally agreed to be a personality disorder marked by significant interpersonal, affective, and behavioural disturbances. However, it is distinguished from Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)-defined antisocial personality disorder, which focuses more on antisocial behaviours than on underlying personality characteristics and, as a result, captures a broader section of the criminal population (American Psychiatric Association, 2000).

Individuals exhibiting psychopathic characteristics have distinct interpersonal, affective, and behavioural characteristics. Interpersonally, they are glib and superficially charming, and they lie and manipulate for their own gain. Affectively, they are callous, shallow, and display little remorse or responsibility for their actions. Behaviourally, they lack goals, and are impulsive, irresponsible, and stimulation seeking (Cleckley, 1941; Hare, 1991, 2003). Extensive research with adult populations has found that individuals with many psychopathic characteristics engage in wide-ranging criminal, and in particular violent criminal behaviour, and tend to have long criminal careers with early beginnings (e.g., Hart & Hare, 1997; Hemphill, Hare, & Wong, 1998; Salekin, Rogers, & Sewell, 1996; Serin, 1991).

Psychopathy as a Form of Psychopathology

It is undoubtedly the behavioural manifestations of psychopathy (such as the callous commission of violent acts) that elicit the attention that psychopathy has received. However, recent research and theoretical conceptualizations suggest that the underlying personality features (such as deficiencies in empathy and affective experiences, impulsivity, and interpersonal grandiosity) are central to the conceptualization of the disorder, with the behavioural disturbances better understood as consequences of the disorder (Cooke, Michie, Hart, & Clark, 2004). Thus, as a form of psychopathology, it is perhaps best conceptualized *not* primarily as a form of conduct disorder, but rather as a disturbance in empathy and interpersonal relations (which commonly results in significant violations of social norms). Lynam and Widiger (2007) recently argued for a conceptualization of psychopathy that is embedded in the five factor model (FFM) of personality functioning. They point out that debates about the factor structure of the Psychopathy Checklist – Revised (PCL-R; Hare, 1991; 2003; the dominant measure of psychopathy) are often characterized as debates about the very construct of psychopathy. They argue that if one is interested in the nature of the construct, repeated factor analysis of the PCL-R might not be the best (or at least, the only) approach. They combined three approaches to construct validation (expert ratings, empirical relations between psychopathy and the 30 facets of the FFM, and translation of the PCL-R into FFM), and articulated twelve base traits where consensus was achieved with all three methods. Using this approach, the ‘prototypical’ psychopath is described as *low* in five facets of agreeableness (straightforwardness, altruism, compliance, modesty, and tender

mindedness), three facets of conscientiousness (dutifulness, self-discipline, and deliberation), one facet of neuroticism (self-consciousness) and extraversion (warmth). In contrast, he or she is described as *high* in impulsiveness (from the neuroticism factor) and excitement seeking. They argue that these 12 characteristics represent core components of psychopathy.

Recent research suggests that psychopathic features among both adults and young people are dimensional rather than taxonic (Murrie et al., 2007; Walters, Duncan, & Mitchell-Perez, 2007). In other words, psychopathy is a matter of degree rather than of kind. It is important to think about the extent of psychopathic characteristics in an individual, rather than whether they are or are not “a psychopath.” A logical extension of this finding is that psychopathy cannot be caused by a single dichotomous factor (Murrie et al., 2007) – instead there must be multiple causal factors that contribute to the development of the disorder.

Factor Structure of the Psychopathy Checklists

The Psychopathy Checklists - particularly, the Psychopathy Checklist – Revised (PCL-R; Hare, 1991; 2003) and the Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson, & Hare, 2003) - are the most heavily researched instruments for measuring psychopathic characteristics in adults and youths, respectively. However, the factor structure of both the adult and youth version of the Psychopathy Checklist remains an unresolved issue in the literature. It is generally agreed that psychopathy is not a unidimensional construct. Traditionally, the PCL-R had a 2-factor structure, with one factor reflecting interpersonal and affective components, and the other reflecting behavioural/lifestyle components (Hare, 1991). However, more recently, both 3 and 4-

factor structures have been put forward in the literature (see Table 1 for descriptions of the four factors). For example, Cooke and Michie (2001) examined the factor structure of the PCL-R and several other measures of psychopathy across several samples and argued for a three factor model of psychopathy, which essentially separated the interpersonal and affective dimensions into two factors, and dropped many of the “criminal lifestyle” items from the behavioural factor. Others, however, have argued that the criminal lifestyle elements of psychopathy should be part of the construct, and form a fourth factor in addition to the three factors described above. For example, Neumann, Hare, and Newman (2007) recently investigated the factor structure of the PCL-R across several samples and found evidence for a four-factor structure of psychopathy with a single super-ordinate factor reflecting the general construct of psychopathy. The most recent version of the PCL-R endorses the four-factor model of psychopathy (Hare, 2003).

Both 3- and 4-factor models are presented in the Psychopathy Checklist: Youth Version (PCL:YV) manual (Forth et al., 2003), with the four factor model encompassing the three factor model (unchanged) and adding an additional factor which primarily reflects an antisocial lifestyle. Recently, Neumann, Kosson, Forth, and Hare (2006) examined the factor structure of the PCL:YV in two studies of incarcerated adolescent male offenders. They found support for both the three and four factor models, but argued that the four factor model was less saturated and provided a better parameter-to-data-point ratio. Jones, Cauffman, Miller, and Mulvey (2006) also found support for both the three and four factor models in a diverse sample of adolescent offenders. Of note, fewer studies have examined the factor structure with girls (or even included girls in their analyses). For example, Jones and colleagues (2006) report that the factor structure of the

PCL:YV is invariant across gender, although they included over 1000 males in their sample but only 184 females. Odgers, Reppucci, and Moretti (2005) recently failed to confirm either the three or four factor model in a sample of incarcerated female offenders. The factor structure and the very construct of psychopathy in adolescent girls are very much in need of further study.

Although one of the arguments for the factor structure of the PCL:YV is clearly statistical, the other is theoretical. The items comprising factor 4 include primarily items relating to behaviour, such as early behaviour problems, serious and versatile criminal behaviour, and violations of release conditions. (The other item relates to poor anger control, but is measured in part by commission of aggressive acts when angry). The theoretical question then becomes whether it is appropriate to include such items in a measure that purports to tap a personality disorder one of whose primary *consequences* is the commission of callous aggressive acts. One may argue that it is somewhat circular to include these items in the construct itself, particularly when investigating its ability to predict future criminal behaviour. Cooke, Michie, Hart, and Clark (2004) tested this theory empirically in two studies with adult male inmates, and found evidence for what they termed a 'causal model' whereby a core three factor model is retained, with two 'consequences' – criminality and relationship liability, which are not part of the core construct. They argue that this is a more pure measure of psychopathy, and will help to clarify the specific relationships between aspects of the psychopathic personality and specific forms of social deviance. Not all researchers, however, agree with this argument. Neumann and colleagues (2006) argue that aspects of personality may include specific

reference to antisocial behaviour and favour adopting a four-factor model of psychopathy.

I agree that a three factor model is preferable, which includes the core personality elements of psychopathy and excludes the lifestyle criminality factors (which I agree should on conceptual grounds be considered consequences of the disorder rather than core elements). However, the main aim of the present study was to examine the specific relations between forms of attachment insecurity and elements of psychopathy. For comparability with previous research, we examined all four factors of the PCL:YV, notwithstanding the limitations discussed above. Because the four factor model encompasses the three factor model unchanged, nothing is lost by examining the fourth factor. However, the meaning of relationships between factor 4 and attachment will be addressed in the discussion with reference to the construct of psychopathy.

Select Research on Adult Psychopathy and Emotional Processing

In addition to the theoretical and statistical arguments discussed above, empirical research on concomitant features to adult psychopathy sheds light on some of the core characteristics of the disorder. Adults who score higher on measures of psychopathy show disturbances in how they process emotional material. For example, research has found that psychopathic adults exhibit lower reactivity to frightening (Patrick, Cuthbert, & Lang, 1994), emotionally disturbing (Williamson, Harpur, & Hare, 1991), and distressing (Blair, Jones, Clark, & Smith, 1997) stimuli, as measured by latency to response time and/or electrodermal responses. The deficiencies that psychopathic adults demonstrate in affective processing have consequences for their interpersonal relationships, and in particular for how they respond to others' distress and fright. For

example, some research has suggested that psychopathic individuals are alexithymic, or unconnected to their emotions, which “results in an inability to emotionally connect to others with the result that other people are treated as objects to be controlled to meet his or her self-focused goals” (Wastell & Booth, 2003, p. 730). In fact, one of the core features of the disorder, which involves both the affective and interpersonal components, is a lack of empathy (Hare, 1991; 2003). In particular, research has suggested that psychopathic adults show impairment in recognizing other people’s fearful expressions under laboratory conditions (Blair et al., 2004), suggesting poor affect identification that may contribute to a lack of empathy.

Psychopathy among Young People

In recent years, researchers have sought to determine the relationship between psychopathic characteristics in adolescence and adulthood, and to investigate the developmental course of psychopathy. The study of psychopathy in young people came about initially as an attempt to determine whether the risk assessment properties of the PCL-R extended to adolescents, and early publications on the topic reflect this focus (e.g., Forth, Hart, & Hare, 1990). Identifying adolescents who are likely to continue to engage in violent behaviour is a challenging task given the rapid change associated with this developmental period (Edens, Skeem, Cruise, & Cauffman, 2001). Some research largely based on file review using the PCL:YV has suggested that psychopathic characteristics are predictive of future criminality among forensic populations (e.g., Brandt, Kennedy, Patrick, & Curtin, 1997; Forth, Hart, & Hare, 1990; Gretton, Hare, & Catchpole, 2004). However, this first generation of literature suffers from several weaknesses, including (a) inconsistent measures of psychopathy, including self-report

measures of questionable validity, (b) varying versions of the PCL:YV before it was published (e.g., Brandt et al., 1997), (c) different protocols for measuring psychopathy with the PCL:YV (file review only versus interview and file review; e.g., Gretton et al., 2004) and (d) failure to examine relative contributions of the affective, interpersonal, and behavioural domains of psychopathy in examining prediction. Because one of the traditional factors of the PCL:YV includes criminal behaviour, it is not surprising that it is predictive of future criminality (Forth et al., 2003).

Although much of this early research has found modest stability of psychopathic characteristics and predictive associations between psychopathy and criminal behaviour, not all research has supported this predictive ability, particularly over the longer term. In a recent study, Edens and Cahill (2007) found no relationship between psychopathic characteristics and recidivism amongst male offenders over a 10-year period. Furthermore, Douglas, Epstein, and Poythress (in press) prospectively examined the ability of three measures of youth psychopathy to predict criminal recidivism: the PCL:YV, the Antisocial Process Screening Device (APSD; Frick & Hare, 2001), and the Childhood Psychopathy Scale (CPS; Lynam, 1997). They found that all three measures predicted violent and weapons recidivism (the CPS also predicted general and non-violent recidivism) at a non-corrected alpha level of .05, but none of the measures were incrementally predictive above the effects of the covariates tested (such as young age, alcohol abuse, past property offences).

Some recent research sheds light on the developmental course of psychopathic characteristics. Loney, Taylor, Butler, and Iacono (2007) recently investigated the temporal stability of psychopathic characteristics over a six-year period from late

adolescence to early adulthood. They administered the Minnesota Temperament Inventory, a self-report measure of psychopathic characteristics based on Cleckley's (1941) conceptualization of psychopathy, to a group of seventeen-year old males from the Minnesota Twin Study. They found an overall decrease in levels of psychopathic characteristics over time, but moderate stability for both the 'emotional detachment' and 'antisocial tendencies' subscales. They also found that the antisocial (but not detachment) subscale predicted adult antisocial personality disorder scores. Unfortunately, this study did not use one of the better-validated measures of psychopathy, which suggests caution in interpretation of their findings. Frick, Kimonis, Dandreaux, and Farrell (2003) found high within-informant stability and modest cross-informant stability of psychopathic characteristics, measured with the antisocial process screening device, over a four-year period in a sample of 3rd-7th graders who were selected from a larger community sample to represent a range of scores on both antisocial behaviour and callous-unemotional characteristics.

In another recent study, Lynam, Caspi, Moffitt, and Stouthamer-Loeber (2007) investigated mother-rated CPS scores at age 13 and Psychopathy Checklist: Screening Version (PCL:SV; Hart, Cox, & Hare, 1995) scores at age 24 among a group of males from the Pittsburgh Youth Study. They found that CPS scores were moderately correlated with the lifestyle and behavioural facets of the PCL:SV, and weakly correlated with the interpersonal and affective facets. This relationship remained after controlling for a number of other factors, including SES, family structure, race, parenting variables, peer and self delinquency, impulsivity, and IQ. Diagnostic specificity (in other words, being 'classified' as psychopathic at both time periods), however, was poor.

Although the above literature suggests that psychopathy bears some relationship to antisocial behaviour, at least among males, the links are in need of further study and clarification. In fact, the initial focus on the predictive ability of the PCL:YV and the downward extension of the construct of psychopathy from adulthood to adolescence has meant that basic questions regarding the nature of early forms of the disorder came about after the fact, rather than as an initial step in construct validation. More recently, the focus in the literature has shifted towards gaining a better understanding of the antecedents to, and comorbid associations with, early forms of psychopathy. Understanding the nature of youth psychopathy is critical if one is to examine the role of potential risk and protective factors, as well as to understand the pathways that lead individuals towards (or away from) psychopathic personality characteristics. As such, in the next section I review existing research that sheds light on the characteristics of early psychopathy, and point to areas that have yet to be thoroughly investigated – namely, those of family environment and attachment.

Extant Research on the Development of Psychopathy

The developmental course of psychopathy is poorly understood. Some researchers have investigated early “psychopathic tendencies” thought to be precursors to adult psychopathy. However, the criteria used to define children with psychopathic tendencies are not well researched and limit the validity of these correlational studies. Few empirical studies have investigated whether children with “psychopathic features” are the ones who become adult psychopaths. Moreover, different measures are used to assess “psychopathy” and its various components, many of which are self-report, and of questionable predictive validity. The vast majority of the research examines concurrent

associations with early “psychopathic traits” which, while shedding light on potential concomitant factors, does not address the issue of developmental trajectories or aetiology. Nonetheless, a review of some of this early work in the area is suggestive of behavioural problems associated with the development of psychopathy. For example, in one study of adolescent offenders, aggressive conduct disorder (CD) symptoms were found to be the primary predictor of psychopathic characteristics, accounting for more than a third of the variance (Rogers, Johansen, Chang, & Salekin, 1997). However, others have argued that symptoms of CD are common in childhood, and thus the predictive validity of CD alone is lacking (e.g., Lynam, 1998; Moffitt, 1993). Lynam (1996; 1998) argues that a combination of hyperactivity, impulsivity, attention problems (HIA) and conduct problems (CP) places children at the greatest risk for developing psychopathy. He argues that the combination of the two sets of problems represents a “particularly virulent strain of CP, which is best described as fledgling psychopathy” (p. 222). Again, however, although this study examines the expression of conduct problems and psychopathy over time, it does not address issues of aetiology.

The initial focus of research on behavioural correlates of psychopathy is somewhat inconsistent with the view that affective disturbance is at the core of the disorder. Some work (e.g., Barry et al., 2000; O'Brien & Frick, 1996) has highlighted the important role of personality characteristics in the development of psychopathy. These researchers have argued that reliance on behavioural predictors of psychopathy not only overestimates children at risk for psychopathy, but also misses the presumed critical component of psychopathy – an affective deficit. Consistent with this view, in a retrospective study of childhood problems among adult male inmates, Abramowitz,

Kosson, and Seidenberg (2004) found that attention deficit hyperactivity disorder (ADHD) and CD symptoms were not predictive of the interpersonal/affective components of psychopathy, but only of the behavioural components.

There is a small literature that identifies affective correlates in children presumed to be “fledgling psychopaths” (e.g., Lynam, 1996). This research has mostly examined the role of callous-unemotional (CU) characteristics. The investigation of callous-unemotional characteristics highlights the important role of a deficient affective experience in the conceptualization of psychopathy. Salekin and Frick (2005) recently articulated it as “critical for defining a subgroup of antisocial youth who showed a deficit in conscience development (p. 404).” Children with above average psychopathic tendencies (according to APSD scores, a self-report scale that assesses different facets of psychopathy) showed lower skin conductance to distress cues than children without such tendencies (Blair, 1999). Loney, Frick, Clements, Ellis, and Kerlin (2003) found that conduct disordered adolescents with more callous-unemotional characteristics (as measured by the APSD) showed emotion processing deficits, as evidenced by latency to response when presented with negative words.

In examining interpersonal behaviour, Moffitt, Caspi, Dickson, Silva, and Stanton (1996) state that many children with childhood-onset CD showed personality characteristics characterized by impulsive behaviour and a cold, callous, suspicious interpersonal style. Frick, Barry, and Bodin (2000) also argue that psychopathy can be more directly assessed in children by examining CU traits in children who present with ADHD/CP. In a study of this, Barry and colleagues (2000) found that children with high CU characteristics and ADHD/CP showed a greater preference for thrill, and a more

reward-dominant response style (continuing to play a game for prizes as the odds of winning decreased from 90% to 0% over consecutive trials) than children with ADHD/CP children who were low on CU characteristics. Both features (sensation seeking; reward-oriented style) are associated with psychopathy. Moreover, the ADHD/CP/CP children were less distressed by their behaviour problems. In a related study, they also had more early contact with police (Frick et al., 2000). The authors argue that the impulsivity and associated problems shown by these children are related to a temperament defined by low behavioural inhibition, and that they represent a subtype of children with CP that resemble adult psychopaths (Christian, Frick, Hill, & Tyler, 1997; Frick & Ellis, 1999). A single recent study has suggested that the presence of CU characteristics is under genetic (rather than environmental) influence at the age of 7 (Viding, Blair, Moffitt, & Plomin, 2005). However, this research utilized a design whereby only same-sex twin pairs were selected for inclusion in the study when at least one twin scored approximately 1.3 standard deviations above the mean on CU characteristics and/or antisocial behaviour characteristics, as rated by teachers. This calls into question the generalizability of the findings. Furthermore, their analysis of callous-unemotional traits included items such as “has at least one good friend” and “is concerned about how well he/she does at school,” which may be confounded with constructs other than CU characteristics.

A recent study prospectively investigated the relationship between early temperament and self-reported psychopathic features in adulthood (Glenn, Raine, Venables, & Mednick, 2007). They found that adults reporting more psychopathic features at age 28 were rated as less fearful, less inhibited, and more sociable in a

laboratory setting at age 3 by trained raters than were adults reporting fewer features. They argue that this provides evidence that there are biological/temperamental precursors to psychopathy that are evident by age 3. Although this is a possible explanation for these findings, it is also important to consider the role of early environment as a causal factor in both temperament at age 3 and psychopathic features in adulthood.

Psychopathy and Child-Caregiver Relationships

As the research begins to address the issue of affective deficits in the early course of psychopathy, there becomes an important role for the study of factors that influence the development of affect and empathy over time. Considerable research in developmental psychology and psychopathology identifies caregiver-child relationships as critically important in determining the course of a child's development, and in particular, in the development of emotion regulation and empathy (Kobak & Sceery, 1988; LaFreniere & Sroufe, 1985; Saltaris, 2002). Family environment has been shown to be a key factor in the understanding of trajectories to both externalizing behaviours and criminality (Levy & Orlans, 2000). Parenting and caregiver factors also have a significant influence on how children with difficult temperamental styles fare over time (e.g., Nachmias, Gunnar, Mangelsdorf, & Parritz, 1996). For example, maltreated children show less emotional expression (Camras & Rappaport, 1993) than do children who were not maltreated. Existing research suggests that certain children with conduct problems exhibit particular temperamental vulnerabilities that make the context in which they develop paramount (Lyons-Ruth, Repacholi, McLeod, & Silva, 1991). It is thus surprising that relatively little attention in the psychopathy literature has been paid to the study of child-caregiver relationships and attachment (Farrington, 2005).

Why study the relationship between attachment and psychopathy?

Psychopathy has been conceptualized as a disorder that, at its core, is marked by a profound disruption in interpersonal bonds (Cleckley, 1941). As such, an important question to examine is how the process of interpersonal disconnection and callousness unfolds. One possibility is that normal attachment bonds that children develop with their caregivers (usually parents) are disrupted and subsequently only poor and disconnected relations are formed with other individuals in life.

The influence of early attachment relationships on the development of psychopathy may not be fully apparent until late in development. For example, recent research has suggested that the disconnection and flat affect exhibited by psychopathic adults may not be as entrenched in adolescence and in adulthood. Adolescents with psychopathic characteristics exhibit higher levels of anxiety than do psychopathic adults (Salekin, Leistico, Trobst, Schrum, & Lochman, 2005), suggesting that psychopathic features may not be fully ingrained early in development. Furthermore, Frick and colleagues (2003) found that the quality of parenting that a child received was related to the stability of psychopathic characteristics over a four-year period. Specifically, youths who remained stably high in psychopathic characteristics were more likely to report *less* positive parenting than either those who remained stably low on psychopathic characteristics, or desisted (high to low) – this was most pronounced for callous-unemotional traits as measured by the APSD. These results suggest that the environment – and more specifically, the quality of parent-child relationship – continues to shape the course of a youth's trajectory of psychopathic characteristics throughout childhood and adolescence.

Initially proposed by Bowlby (1969), attachment refers to an individual's enduring bonds with others and patterns of relating to others, initially to caregivers in infancy, and then generalizing to other close relationships. At its core, the theory posits that the quality of a child's attachment is a direct function of experiences with caregivers – specifically, the extent to which the caregiver is perceived to be a reliably available figure. Based on experiences in relationships with caregivers, children develop internal working models of close relationships, which serve to guide both their perceptions and expectations of future interactions, and also guide their own sense of worth and/or lovability in the context of those relationships. John Bowlby wrote about the importance of attachment in understanding psychopathology. Research with adolescent clinical populations has shown them to have much higher rates of insecure attachment than the general population – in one such study, only 7% of adolescents were categorized as predominantly secure in their attachment (Scharfe, 2002).

Developmentally, attachment theory contends that a child develops empathy for others within the context of attachment relationships (Kochanska, 1995). Secure attachment is associated with a host of positive developmental outcomes. In particular, secure attachment is related to the regulation and modulation of affect and behaviour (Allen, Hauser, & Borman-Spurrell, 1996; Mikulincer & Shaver, 2005) and the development of empathy (LaFreniere & Sroufe, 1985; van der Mark, van IJzendoorn, & Bakermans-Kranenburg, 2002) throughout childhood and adolescence – all of which are notably lacking in psychopathy. From this perspective, attachment style has implications for interpersonal behaviour and character development, including empathy development, propensity to aggression and, by extension, psychopathic characteristics. Several studies

on the family backgrounds of psychopathic individuals are reported in the manual of the adult version of the PCL-R on the association between adverse family experiences and psychopathic characteristics among adults. Weiler and Widom (1996) found an association between substantiated child abuse and psychopathic characteristics twenty years later. They did not examine specific factors of psychopathy. Devita, Forth, and Hare (1990) found an association between psychopathic characteristics and two family variables (coded from institutional files) among adult male offenders: parental rejection and lack of parental supervision – unfortunately, details regarding factor scores are not provided. Marshall and Cooke (1999) found that male offenders who were high on interpersonal and affective psychopathic characteristics (traditional Factor 1) reported experiencing less consistent discipline, and more indifference and antipathy from parents than did offenders low on psychopathy, although they found this influence to be stronger at low and moderate levels of psychopathy. Although these studies do not directly address the issue of attachment, many of the variables studied (parental abuse, rejection, antipathy) will have a significant impact on the child-parent attachment relationship.

Two dimensions of attachment have been proposed by Bartholomew and Horowitz (1991), based on Bowlby's (1969) models of self and other. "Anxiety" refers to the degree to which individuals experience anxiety or distress when faced with a separation or threatened separation of an attachment figure, or generally when threatened. "Avoidance" refers to the degree to which individuals avoid attachment figures when distressed. Both dimensions can be combined to form four prototypical attachment "styles": secure (low anxiety, low avoidance), preoccupied (high anxiety, low avoidance), fearful (high anxiety, high avoidance), and dismissing (low anxiety, high avoidance); see

Figure 1. Secure individuals are comfortable with closeness in relationships, but are not overly distressed when threatened with a separation of an attachment figure. Dismissing individuals also do not experience much distress during separations from attachment figures; however, they are less comfortable with close relationships, instead keeping relationships more superficial and emotionally distant. Preoccupied individuals experience considerable anxiety at actual or perceived separations from attachment figures, and manage that anxiety by maintaining very close proximity to attachment figures. Fearful individuals experience the same anxiety at separations that preoccupied individuals do, but they manage that anxiety differently. Fearful individuals tend to avoid attachment figures when distressed, fearing rejection from them if they approach. Research has suggested that girls and women show higher levels of attachment anxiety than do boys and men (e.g., Bartholomew & Horowitz, 1991; David & Lyons-Ruth, 2005; Scharfe, 2002). While these descriptions reflect the prototypical style, this conceptualization of attachment does not take a categorical approach; instead, continuous ratings on all dimensions allow for the fact that individuals can demonstrate aspects of multiple attachment styles. This stands in contrast to the approach used by the Adult Attachment Interview (George, Kaplan, & Main, 1995), which takes a categorical view of attachment, placing people into one of several attachment categories or types based on their predominant style. Moreover, Bartholomew's model is based on a two-dimensional, four-category model of attachment, rather than the earlier 3 dimensional model which does not distinguish anxious and non-anxious avoidance (for a review, see Roisman et al., 2007).

There is scant direct research on the relationship between attachment and psychopathy among adolescents. However, some research on family characteristics suggests that such a relationship might exist. For example, Campbell, Porter, and Santor (2004) found that among adolescent offenders, higher PCL:YV scores were associated with a history of physical abuse and a history of non-parental living arrangements such as foster care (unfortunately, they did not examine the association between family variables and specific PCL:YV factors). Furthermore, research has found that insecure, and particularly avoidant insecure attachment is associated with antisocial behaviour and externalizing problems more generally (e.g., Greenberg, Speltz, & DeKlyen, 1993; Renken, Egeland, Marvinney, & Mangelsdorf, 1989). In particular, Rosenstein and Horowitz (1996) found that there was an association between avoidant-dismissing (fearful/dismissing) attachment styles and conduct disorder, substance abuse, and antisocial and narcissistic personality disorders among adolescent inpatient psychiatry patients.

Some limited work has examined the attachment representations of psychopathic adults. Frodi, Dernevik, Sepa, Philipson, and Bragejo (2001) found an over-representation of avoidant-dismissing attachment style among 14 psychopathic inmates, suggesting disturbance and disconnection in interpersonal relationships. However, this study was predominantly qualitative in nature and lacked the sample size to draw firm conclusions about the role of attachment in psychopathy. Kosson, Cyterski, Steuerwald, Neumann, and Walker-Matthews (2002) found that psychopathic characteristics among adolescent boys on probation were associated with a lack of self-reported closeness (“attachment”) with parents. They did not break down their analyses by PCL:YV factors,

leaving questions open as to which elements of psychopathy were associated with a lack of closeness to parents. Flight and Forth (2007) recently investigated the relationship between psychopathic characteristics and self-report of attachment to caregivers and friends among 51 incarcerated male adolescent offenders. It was one of the few studies to examine psychopathy as a whole as well as its different elements. They found that PCL:YV total scores and Factor 3 (behavioural) scores were negatively related to reported closeness with father (but not mother or peers). Of note, this study used a self-report measure that assesses the *degree* of attachment, but does not address specific dimensions of attachment security or insecurity. Instead, it seems to reflect closeness. To date, no known research has examined attachment representations among adolescent girls, nor have studies used attachment interviews to assess the nature of an adolescent's attachment to caregivers. Self-report and interview methods of assessing attachment come from two somewhat divergent research areas: social psychology and developmental/clinical psychology, respectively (Fraley, 2002). While research has suggested that interview and questionnaire methods of assessing attachment are both valid and are thought to both tap unconscious processes (e.g., Shaver & Mikulincer, 2002), interview methods may be preferable amongst individuals whose "perceptions of themselves and their close relationships appear to be so distorted that we could not imagine that they would be capable of meaningful self-reports" (Bartholomew & Moretti, 2002, p. 163), although research has yet to systematically investigate the issue of whether there is variability in the validity of self-reports of attachment depending on the level of dysfunction of the sample. For a comprehensive review of measurement issues in attachment, see *Attachment and Human Development* special issue on this topic (2002).

The Present Study

The purpose of the present study was to empirically investigate the relationships between attachment to caregivers and adolescent psychopathic characteristics. This research examined the specific association between dimensions of attachment and domains of psychopathic characteristics. Additionally, gender differences were examined to determine whether the relationship between attachment and psychopathic characteristics is similar for boys and girls. The role of gender has been raised in the study of psychopathy. Theoretically, the construct of psychopathy should apply similarly to girls and boys (Forth et al., 2003). However, the distribution of insecure attachment is gendered (Rosenstein & Horowitz, 1996), and girls with CD are more likely to have concomitant internalizing disorders such as post-traumatic stress disorder (e.g., Reebye, Moretti, Wiebe, & Lessard, 2000), suggesting that relationships between attachment and psychopathy *may* not be invariant across genders. Moreover, the factor structure of the PCL:YV may not be the same between boys and girls (Odgers et al., 2005). This research addresses questions regarding whether and how attachment has implications for our understanding of the development, and intervention implications, of psychopathy.

Hypotheses

Consistent with my view that a three factor model of psychopathy is preferable, predictions relate only to total scores and Factors 1-3 of the PCL:YV, although relationships with the fourth factor will also be examined.

Hypothesis 1: PCL:YV Total scores and Factors 1-3 will be positively related to insecure attachment.

Secure attachment is associated with a host of positive developmental outcomes, including higher levels of empathy (Joireman, Needham, & Cummings, 2002) and engagement in prosocial activities (Van Lange, De Bruin, Otten, & Joireman, 1997). Psychopathic characteristics represent the antithesis to these outcomes. Moreover, research has found that psychopathic characteristics are associated with a history of abuse (Campbell et al., 2004), which is in turn associated with attachment insecurity (Cook et al., 2005). Therefore, it is hypothesized that psychopathic characteristics will be positively related to attachment insecurity.

Hypothesis 2: PCL:YV Total scores and Factors 1-3 will be positively associated with attachment avoidance.

Some research has suggested that children exhibiting externalizing disorders are more likely to have avoidant attachment styles (Greenberg et al., 1993). Moreover, psychopathy as a construct is characterized by callousness and disconnection from interpersonal relationships (Cleckley, 1941). As such, it is hypothesized that individuals scoring higher on psychopathy will have attachment styles characterized by deactivation of the attachment system – namely, high avoidance in attachment relationships.

Hypothesis 3: PCL:YV Total scores and Factors 1-3 will be negatively associated with attachment anxiety.

Although there is some inconsistency in the literature (e.g., Salekin et al., 2005), the majority of research suggests that the interpersonal and affective components of psychopathy are negatively related to trait anxiety (Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999). Previous research has suggested that adolescents exhibiting psychopathic characteristics indicate that they are not close with parents (Kosson et al.,

2002). Moreover, the theoretical predictions from clinical writings on psychopathy (Cleckley, 1941; Hare, 1991; 2003) suggest that psychopathy is negatively related to anxiety. As such, I hypothesize that psychopathy will be negatively related to attachment anxiety.

Hypothesis 4: Individuals scoring high on the PCL:YV will exhibit higher levels of dismissing attachment.

Individuals with dismissing attachment tend to be defensive, avoid getting close to other people, and manifest lower levels of empathy (Bartholomew & Horowitz, 1991). Additionally, preliminary research with psychopathic adults has found that they are more likely to show a dismissing attachment style (Frodi et al., 2001). I therefore hypothesize that adolescents exhibiting more psychopathic characteristics will show more elements of dismissing attachment.

METHODS

Participants and Procedure

Data for this study were collected as part of a larger longitudinal study of aggression among high-risk youths. As part of the time 1 phase of this study (from which these data are drawn) multiple interview and self-report measures were administered to youths in three modules during their stay in a custody centre or mental health assessment centre.

Participants in the Time 1 phase of the larger study were 179 adolescents (97 boys, 82 girls) from two locations in British Columbia: a mental health centre for the assessment of severe behavioural problems ($n = 79$; 44 boys and 35 girls) and two custody centres that house adolescents charged with or convicted of criminal offences ($n = 100$; 53 boys and 47 girls). Participants were between the ages of 12 and 18. In the forensic setting, 132 legal guardians were asked if they would give consent to approach their child to participate in the study. Twenty eight guardians did not give consent to contact their child (21%). Of the 104 youths approached for the study, 5 did not give consent (4%) and one youth withdrew during the study. In the mental health setting, 102 youths were approached (all guardians gave consent). Of the 102 youths, 19 did not give consent (19%) and two (2%) withdrew during the study. (See Appendix C for consent forms.)

It was not feasible to administer all modules to all youths given the short duration of some participants' stays. The administration order of modules was randomized. Data

for this study was drawn from the first and third modules of the larger project. Of the 179 participants interviewed as part of the Time 1 data from the larger study, full data for the present study were obtained for 109 adolescents. With regards to key measures in this study, psychopathy data were collected for 145 youths (81 from the custody centres and 64 from the mental health centre), and attachment data were collected for 127 participants (75 from custody centres and 52 from the mental health centre).¹ This resulted in a final sample size of 109 youths who had complete data on both attachment and psychopathy measures. To ensure that the sample used in this research was similar to the larger study sample, several comparability checks were run. These revealed no differences on participants' age, ethnicity, care status, psychiatric profile, or scores on psychopathy or attachment (see Tables 2-3).

The study was conducted in three separate 1 to 2 hour interview modules, which were administered between 2003 and 2006. Each interview was audiotaped. Following confirmation of parental consent, youths were approached and explained the nature of the study and the limits to confidentiality and asked whether they were interested in participating. Given the lower number of girls in both study sites, girls were oversampled. Boys were matched by year of birth to girls. Exclusionary criteria were mental handicap (as defined by IQ or VIQ < 70) and current major thought disorder symptomatology. The psychopathy and attachment interviews were administered and coded by independent trained raters who remained blind to the information in the other module.

Participants at the mental health centre were paid \$30 for their participation.

Participants at the custody centres were paid \$10 and received 2 snacks during each

¹ The lower number of attachment data available was due to technical difficulty with the audio equipment that resulted in a loss of 21 attachment interviews.

interview. Confidentiality was maintained through the use of subject codes, and all data was stored without identifying information in locked filing cabinets. The present study received approval from the Simon Fraser University Research Ethics Board, and permission from the director of the Ministry for Children and Family Development.

*Sample Descriptives.*² Participants were on average 15.4 years of age ($SD = 1.5$ years). Over half (58.7%) of participants were under the legal care of their biological parents at the time of interview. Youths in the study were predominantly Caucasian (63%), with a significant minority of Aboriginal youths (27%). The remaining 10% of youths were from a variety of other ethnic backgrounds (including mixed ethnicity), with no one ethnicity comprising more than 1% of the sample. Using the computerized Diagnostic Interview for Children and Adolescents – IV (DICA-IV; Reich, Welner, & Herjanic, 1997), which was administered by trained graduate students, rates of mental health problems were high among youths in the present study. Over half of participants met criteria for conduct disorder (58%). Eighteen percent of youths met criteria for a current diagnosis of ADHD. Thirty nine percent of youths met criteria for alcohol dependence, while another six percent met criteria for alcohol abuse. Rates for marijuana dependence (43%) and abuse (12%) were also high. Thirty two percent of youths met criteria for dependence to street drugs, and one youth met criteria for abuse of street drugs. One quarter (23%) of youths met current criteria for major depressive disorder, and one in ten (10%) met criteria for generalized anxiety disorder.

² Sample descriptives include only the 109 youths for which complete data were available.

Demographic and clinical characteristics were compared across gender and sample location prior to merging data for analysis. In particular, potential differences in age, ethnicity, diagnostic status, and custody arrangements were examined.

Boys and girls did not differ in age, ethnicity, or custody status (see Table 4). On the whole, boys and girls had similar rates of mental health problems. Girls, however, were twice as likely to meet current criteria for major depressive disorder than were boys (32% vs. 15%).

Table 5 shows the demographic and clinical variables for youths from the forensic and mental health settings. Youths from the custody centres were significantly older than youths from the mental health setting (16 years vs. 14.5 years). In the custody centres, there were more Aboriginal participants (36% versus 15%) and fewer Caucasian participants (53% versus 77%) than in the mental health setting. Predictably, more youths in forensic settings than in the mental health setting met criteria for conduct disorder (74% vs 40%). More youths in forensic settings than mental health settings met criteria for dependence to alcohol (60% vs. 17%), marijuana (59% vs 26%), and street drugs (50% vs 13%).

Because some differences were found between boys and girls and between forensic and mental health participants, both gender and location are included as variables in the models for all analyses. In addition to examining main effects of these variables, interactions (gender by variable of interest and location by variable of interest) were also examined. This allows for an examination of the consistency of findings across gender and sample location.

Measures

Psychopathy

The PCL:YV is an instrument designed to measure the interpersonal, affective, and behavioural domains of psychopathy among adolescents aged 12-18. This 20-item checklist is completed by a trained rater following a semi-structured interview and a review of collateral information. Each item is scored on a 3-point scale, with 0 indicating that the item does not apply to the youth, 1 indicating that it applies to a certain extent, and 2 indicating that the item applies to the youth. Raters score items relative to prototypical behaviour for a given developmental level. The total score can range from 0 to 40, with higher scores reflecting a greater degree of psychopathic characteristics. Mean scores in forensic youth populations range from 21 to 26 (Forth et al., 2003). Previous research has found the PCL:YV to have good reliability among forensic populations (e.g., Brandt et al., 1997; Gretton et al., 2004; O'Neill, Lidz, & Heilbrun, 2003). The PCL:YV manual reports internal consistencies for total scores ranging from .85 - .94 across samples. For the four factor model, alphas ranged from .74 to .81. Interrater reliabilites for total scores ranged from .90 to .93, and interrater reliabilities at the item level ranged from .60 - .91 in institutional samples, and .33 to 1.0 in clinic/community samples.

In the present study, PCL:YV ratings were made by trained graduate students who had experience in clinical interviewing and had attended a one-day training workshop on interviewing for and coding psychopathy. Additionally, PCL:YV raters completed a series of training files to ensure coding reliability before beginning the study.

Additionally, inter-rater reliabilities were randomly conducted on a subset of 19 interviews in the present study, spanning the period of data collection. In the present

study, the inter-rater reliability of the PCL:YV, as measured by single-rater intra-class correlation, was .88 for the total scores, .81 for Factor 1, .73 for Factor 2, .65 for Factor 3, and .88 for Factor 4.³ In the present study, internal consistencies for the PCL:YV total score and Factors 1-4, as measured by Cronbach's alpha, were .84, .62, .66, .56, and .79 respectively.

The mean total PCL:YV score across the entire sample was 21.0 ($SD = 6.9$), and ranged from a minimum of 4 to a maximum of 36; see Figure 2 for distribution of PCL:YV scores. Not unexpectedly, participants from forensic locations had significantly higher PCL:YV scores on average than did participants from the mental health centre (24.7 vs 16.3, $t(107) = 7.0, p < .001$). These scores are consistent with previous findings. According to Forth and colleagues (2003), the average weighted total PCL:YV scores among 11 samples of incarcerated youth (both boys and girls) was 24.4, and among 5 samples of youth on probation was 20.1. Among a sample of clinic-referred boys exhibiting conduct disorder symptoms, the average total PCL:YV score was 16.95.

Girls had significantly lower total PCL:YV scores on average (19.4) than did boys (22.4), $t(107) = 2.3, p = .02$. Although the average gender difference reported by Forth and colleagues (2003) across 5 samples of institutionalized youth was only 0.67, a difference of three points was reported in one of the samples. Table 8 shows the mean psychopathy scores for each of the four factors, by gender. Results show that the gender difference was limited to the Affective and Antisocial factors of PCL:YV scores (Factors 2 and 4).

³ Using a slightly larger sample that included cases not used in the present study, the ICCs were significantly higher: .96 (total score); .93 (Factor 1), .90 (Factor 2), .84 (Factor 3), .96 (Factor 4).

The intercorrelations between factors of the PCL:YV were also examined. All factors were moderately and significantly intercorrelated. Factor 1 of the PCL:YV was correlated with Factor 2 ($r = 0.44, p < .005$), Factor 3 ($r = 0.42, p < .005$), and Factor 4 ($r = .20, p = .04$). Factors 2 and 3 ($r = 0.54, p < .005$) and Factors 2 and 4 ($r = .53, p < .001$) were also correlated. These are consistent with those reported in previous research (Forth et al., 2003).

Attachment

The Adolescent Attachment Interview is a 60-120 minute semi-structured interview designed to assess youths' attachment to their primary caregivers. Interviews included, among other things, questions about youths' perceptions of their family history, characteristics of their key caregivers, their feelings in their relationships with caregivers, and their response to separations from caregiving figures. Interviews were administered by clinical psychology graduate students who received training (in the form of a graduate course and follow up training sessions over the course of several months) on administering and coding attachment interviews.

The interviews were coded using Bartholomew and Horowitz's (1991) attachment framework that includes four prototypical attachment styles: secure, preoccupied, fearful and dismissing (see Appendix D for examples of prototypes). Following a review of an audiotape of the interview, trained raters scored youths on many dimensions that reflect aspects of their attachment. For example, youths are scored on their level of idealization, anger, and closeness with key caregivers. Additionally, youths are scored on their coherence in discussing their attachment figures, their level of distress in the interview,

and their reported frequency of vulnerable emotions and methods of coping with such emotions. Following consideration of all the dimensions, every youth is assigned a score on each of the styles, reflecting the degree to which a youth's attachment style fits each prototype. A score of 1 indicates "no correspondence with the prototype" whereas a score of 9 indicates "excellent fit with the prototype. In this coding scheme, youths may have components of more than one type of attachment. Additionally, scores for attachment anxiety and avoidance were computed in the following manner (Scharfe, 2002):

$$\text{Anxiety} = \text{Fearful} + \text{Preoccupied} - \text{Secure} - \text{Dismissing}$$

$$\text{Avoidance} = \text{Fearful} + \text{Dismissing} - \text{Secure} - \text{Preoccupied}$$

Research has identified this coding system as a reliable and valid method of examining individuals' attachment representations (e.g., Bartholomew & Horowitz, 1991) including among clinical samples of adolescents (Scharfe, 2002). For example, Scharfe (2002) reported kappas of .46 - .68 for each attachment style. Moreover, she examined categorical ratings and found overall agreement between 80% and 92% for each style. Bartholomew and Horowitz (1991) reported reliabilities between .87 and .95. Research has also found that attachment ratings are independent of youths' IQ (Scharfe, 2002).

Inter-rater reliability analyses were conducted on a subset of 32 interviews in the present study, and were excellent. In the present study, the inter-rater reliability of the attachment subscales, as measured by single-rater intra-class correlation, were .96 for secure, fearful, and dismissing styles and .98 for the preoccupied style. Inter-rater reliabilities for the anxiety and avoidance dimensions were .95 and .97, respectively.⁴

⁴ Internal consistencies are not reported since styles are not made up of individual items but are rather singular ratings.

Tables 7 and 8 show the mean attachment scores for each of the four attachment styles, as well as the calculated scores on anxiety and avoidance by location and gender, respectively. None of the scores differed significantly by location. Each of the insecure styles of attachment (preoccupied, fearful, and dismissing) showed a good range of scores, from a minimum of 1 to a maximum of 7 (out of a possible 9); see Figures 3-5. The secure style showed a more limited range (1 – 4.5), indicating a lack of youths exhibiting predominant attachment security (see Figure 6). The ranges of all attachment styles were similar for boys and girls. Figures 3-6 show the distribution of attachment scores for the four styles of attachment.

The intercorrelations between attachment styles are shown in Table 9. Overall, there were modest relationships between some of the attachment styles, consistent with the range seen in other studies (Bartholomew & Horowitz, 1991; Scharfe, 1996).

Data Analytic Approach

All hypotheses were examined using moderated multiple regression (MMR). MMR is a form of hierarchical regression that allows for the testing of main effect and interaction terms on a criterion variable (Cohen & Cohen, 2003). Because some differences were found on variables of interest for both boys and girls and by location of participants, potential interactions between variables of interest and location/gender were also examined.

The linear regressions were conducted in two steps: in the first step, an attachment dimension (secure, fearful, preoccupied, dismissing, anxiety or avoidance), location (forensic or mental health), and gender (male or female) was entered. In the second step,

the interaction terms between the predictors and covariates (attachment by location and attachment by gender) was entered (direct entry). The criterion variables were: PCL:YV total scores, PCL:YV Factor 1 scores, PCL:YV Factor 2 scores, PCL:YV Factor 3 scores, and PCL:YV Factor 4 scores, respectively.⁵

A power analysis was conducted to determine the power to detect specific effect sizes at an α of .05. To detect an R^2 change of .10 (a large effect size), the present sample size provided a power of .96 for the main effects, and .92 for the interactions. For an R^2 change of .05 (a medium effect size) it was .65 for the main effects and .55 for the interactions. Unfortunately, the sample size did not permit controlling for family-wise error without resulting in extremely poor power. Implications of this are outlined in the discussion section.

⁵ The unique relationship between PCL:YV factors and attachment, controlling for the effects of the other factors, was also examined. In order to accomplish this, the four PCL:YV factors were entered into a factor analysis with varimax rotation in order to produce new variables that were maximally correlated with the original variable, but uncorrelated with each other. This was also done for attachment variables (separately) using the same strategy. The new orthogonal variables were very highly correlated with the original variables ($r \geq .94$), and produced identical analytic results. Therefore, these analyses are not reported.

RESULTS

Because each analysis includes an analysis of the main effects of gender and location on PCL:YV scores (total or factor scores) across attachment dimensions, I will summarize the effects here rather than repeating them individually for each analysis. Girls had significantly lower PCL:YV Total, Factor 2, and Factor 4 scores than boys. Participants from the mental health setting had lower PCL:YV Total, Factor 2, 3, and 4 scores than participants from the forensic setting.⁶

Psychopathy and Attachment Security

Tables 10-14 show the regression analyses for attachment security and PCL:YV total scores, and Factors 1-4, respectively.

Contrary to prediction, PCL:YV total scores were unrelated to attachment security (Table 10). Although the model was significant at Step 1 ($F(3, 108) = 23.17, p < .01$), attachment security did not contribute to the model ($p = .56$). The addition of interaction terms at Step 2 did not reveal significant gender by attachment security ($p = .71$) or location by attachment security ($p = .82$) interactions. The overall step was also not significant ($F\Delta = 0.19, p = .83$).

Factor 1 of the PCL:YV was also unrelated to attachment security (Table 11). In this case, the model was not significant at Step 1 ($F(3, 107) = 0.98, p = .41$), and the $R^2\Delta$ at Step 2 was also small and non-significant ($.002, p = .92$). Factor 3 of the PCL:YV was

⁶ The Factor 2 difference was significant for attachment anxiety, fearfulness, and preoccupation. It approached significance for security, avoidance, and dismissiveness. The Factor 4 difference only approached significance for attachment dismissiveness. It was significant on all other attachment dimensions.

similarly unrelated to attachment security; Table 13. Although the model was significant at Step 1 ($F(3, 107) = 8.50, p < .01$), attachment security did not contribute to the model ($p = .35$). The addition of interaction terms at Step 2 resulted in no significant gain in predictive ability ($R^2\Delta = .01$). PCL:YV Factor 4 was also unrelated to attachment security (Table 14). Although the model was significant at Step 1 ($F(3, 106) = 58.02, p < .01$), attachment security did not contribute to the model ($p = .99$). The addition of interaction terms at Step 2 resulted in no significant gain in predictive ability ($R^2\Delta = .001$).

Consistent with hypothesis 1, Factor 2 of the PCL:YV (Deficient Affective Experience) was negatively related to attachment security (Table 12). The model was significant at Step 1 ($F(3, 107) = 8.27, p < .01$). In this case, attachment security ($p = .01$) contributed significantly to the equation. In other words, youths with higher PCL:YV Factor 2 scores were rated as *less* secure (or, conversely, less secure individuals were rated as higher on PCL:YV Factor 2). This relationship was similar for boys and girls, and across locations, with no significant gender ($p = .84$) or location ($p = .77$) interactions.

Psychopathy and Attachment Avoidance

The relationship between attachment avoidance and PCL:YV Total and Factor 1-4 scores are presented in Tables 15-19. Contrary to prediction, PCL:YV total scores and all factor scores were unrelated to attachment avoidance. This was consistent across gender and location.

For PCL:YV total scores (Table 15), the model was significant at Step 1 ($F(3, 108) = 23.38, p < .01$), but attachment avoidance did not contribute to the model ($p =$

.39). The addition of interaction terms at Step 2 did not add to the predictive ability of the model ($R^2\Delta = .007$), nor were there any significant gender by attachment avoidance ($p = .35$) or location by attachment avoidance ($p = .57$) interactions.

For PCL:YV Factor 1 scores (Table 16), the model was not significant at Step 1 ($F(3, 107) = 1.15, p = .33$), nor did the addition of interaction terms at the second step improve the predictive ability of the equation ($R^2\Delta = .004$). For PCL:YV Factor 2 scores (Table 17), the model was significant at Step 1 ($F(3, 107) = 5.73, p < .01$) but attachment avoidance did not contribute to the model ($p = .57$). The addition of interaction terms at Step 2 did not contribute significantly to the model ($R^2\Delta = .007$), nor were the specific gender by attachment avoidance ($p = .37$) or location by attachment avoidance ($p = .91$) interactions significant. PCL:YV Factor 3 scores were similarly unrelated to attachment avoidance; Table 18. Although the model was significant at Step 1 ($F(3, 108) = 8.26, p < .01$), attachment avoidance did not contribute to the model ($p = .58$). Step 2 did not improve the predictive ability of the equation ($R^2\Delta = .004$), nor did it reveal any gender by attachment avoidance ($p = .61$) or location by attachment avoidance ($p = .67$) interactions. PCL:YV Factor 4 scores were also unrelated to attachment avoidance (Table 19). Although the model was significant at Step 1 ($F(3, 106) = 59.40, p < .01$), attachment avoidance did not contribute to the model ($p = .22$), nor were there any significant avoidance by gender ($p = .93$) nor avoidance by location ($p = .21$) interactions at Step 2. The $R^2\Delta$ at Step 2 was also small and non-significant (.004).

Psychopathy and Attachment Anxiety

Results for attachment anxiety and PCL:YV total and factor scores are presented in Tables 20-24. The relationships between PCL:YV total/Factor 4 scores and attachment anxiety differed significantly between boys and girls.

For PCL:YV total scores, the model was significant at Step 1 ($F(3, 108) = 23.10, p < .01$); however, attachment anxiety did not contribute to the model ($p = .63$; Table 20). At Step 2, there was a significant gender by attachment anxiety interaction ($p = .03$), and the main effect of attachment anxiety was also significant ($p = .04$). Figure 7 shows the plot of the interaction term with low (below mean) and high (above mean) attachment anxiety, revealing that girls with higher attachment anxiety also had *higher* PCL:YV total scores; whereas boys with higher attachment anxiety had *lower* PCL:YV total scores.

For PCL:YV Factor 1 scores (Table 21), the model was not significant at Step 1 ($F(3, 107) = 1.14, p = .34$). The addition of the interaction scores at Step 2 did not add significantly to the equation ($R^2\Delta = .02$), although there was a trend in the predicted direction (that is, individuals with more attachment anxiety having lower PCL:YV Factor 1 scores; $p = .10$). There was no relationship between PCL:YV Factor 2 scores and attachment anxiety (Table 22). The model was significant at Step 1 ($F(3, 107) = 5.79, p < .01$), but attachment anxiety did not contribute to the equation ($p = .34$). At Step 2, the $R^2\Delta$ was small and non-significant (0.03), although there was a trend towards an anxiety by gender interaction at Step 2 ($p = .08$). There was also no relationship between PCL:YV Factor 3 scores and attachment anxiety (Table 23). The model was significant at Step 1 ($F(3, 107) = 8.62, p < .01$), but attachment anxiety did not contribute ($p = .28$). The addition of the interaction terms at Step 2 did not result in any increased predictive

ability ($R^2\Delta = .006$), nor did it reveal any significant attachment anxiety by gender ($p = .65$) or attachment anxiety by location ($p = .42$) interactions.

For PCL:YV Factor 4 scores, the model was significant at Step 1 ($F(3, 106) = 59.07, p < .01$); however, attachment anxiety did not contribute to the model ($p = .82$; Table 24). At Step 2, there was a significant gender by attachment anxiety interaction ($p = .007$). Figure 8 shows the plot of the interaction term with low (below mean) and high (above mean) attachment anxiety, revealing that girls with higher attachment anxiety also had *higher* PCL:YV Factor 4 scores; whereas boys with higher attachment anxiety had *lower* PCL:YV Factor 4 scores.

Psychopathy and Specific Forms of Attachment Insecurity

The relationship between PCL:YV total and factor scores and all forms of attachment insecurity (dismissiveness, fearfulness, and preoccupation) were examined.

Dismissiveness. The relationship between PCL:YV total and factor scores for attachment dismissiveness are shown in Tables 25-29. Results differed significantly by gender for PCL:YV total and Factor 4 scores.

For PCL:YV total scores, the model was significant at Step 1 ($F(3, 108) = 23.86, p < .01$), but attachment dismissiveness did not contribute significantly to the model ($p = .21$; Table 25). However, the addition of the interaction terms at Step 2 revealed a gender by dismissiveness interaction ($p = .05$), and at Step 2 dismissiveness contributed significantly to the predictive equation ($p = .04$). Figure 9 shows the interaction between dismissiveness and gender, and reveals a positive relationship between attachment dismissiveness and PCL:YV total scores for boys, and a negative relationship for girls. In

other words, boys with more dismissing attachment were rated as more psychopathic, whereas girls with *less* dismissing attachment were rated as more psychopathic.

There was no relationship between PCL:YV Factor 1 scores and dismissiveness; Table 26. The model was not significant at Step 1 ($F(3, 107) = 1.11, p = 0.35$), nor did the addition of the interaction terms at Step 2 make for a significant predictive equation ($R^2\Delta = .01$). There was also no relationship between PCL:YV Factor 2 scores and attachment dismissiveness (Table 27). Although the model was significant at Step 1 ($F(3, 107) = 5.78, p < .01$), attachment dismissiveness did not contribute to the equation ($p = .51$). The addition of the interaction terms at Step 2 did not result in any significant gain in predictive ability ($R^2\Delta = .02$), nor did it result in a significant dismissing attachment by gender interaction ($p = .13$) or dismissing attachment by location ($p = .70$) interaction. For PCL:YV Factor 3 (Table 28), there was no relationship with dismissing attachment. The model was significant at Step 1 ($F(3, 108) = 9.09, p < .01$), but dismissiveness did not contribute to the equation ($p = .13$). At Step 2, no predictive ability was gained ($R^2\Delta = .005$), nor were there any significant dismissing attachment by gender ($p = .93$) or dismissing attachment by location ($p = .40$) interactions.

PCL:YV Factor 4 was differentially related to attachment dismissiveness for boys and girls. The model was significant at Step 1 ($F(3, 106) = 59.08, p < .01$), but attachment dismissiveness did not contribute significantly to the model ($p = .28$; Table 29). However, the addition of the interaction terms at Step 2 revealed a gender by dismissiveness interaction ($p = .006$). Figure 10 shows the interaction between dismissiveness and gender, and reveals a positive relationship between attachment dismissiveness and PCL:YV total scores for boys, and a negative relationship for girls.

In other words, boys with more dismissing attachment were rated as higher on Factor 4 of the PCL:YV, whereas girls with *less* dismissing attachment were rated as higher on Factor 4 of the PCL:YV.

Fearfulness. The relationship between PCL:YV total and factor scores for attachment fearfulness are shown in Tables 30-34. The relationship between attachment fearfulness and PCL:YV Factor 4 scores differed significantly by gender.

For PCL:YV total scores (Table 30), results showed that at Step 1, the model was significant ($F(3, 108) = 24.36, p < .01$); however, fearfulness did not contribute to the model ($p = .12$). However, with the addition of the fearfulness by gender and fearfulness by location interactions at Step 2, fearfulness did significantly contribute to the model ($p = .04$). In other words, when both location and gender interactions were included, there was a significant negative relationship between attachment fearfulness and PCL:YV total scores. However, neither the fearfulness by gender ($p = .22$) nor fearfulness by location ($p = .22$) interactions were themselves significant, suggesting caution in interpreting the main effect for fearfulness. Visual inspection revealed that this negative relationship between fearfulness and PCL:YV total scores was mostly accounted for by boys. In other words, boys who displayed more attachment fearfulness tended to have lower PCL:YV total scores.

For PCL:YV Factor 1 scores (Table 31), the overall model was not significant at Step 1 ($F(3, 107) = 1.66, p = .18$), nor Step 2 ($R^2\Delta = .03$). However, there was a trend towards a negative relationship between attachment fearfulness and PCL:YV Factor 1 scores at Step 2, once the two-way interaction terms were included ($p = .07$).

For PCL:YV Factor 2 scores (Table 32), the model was significant at Step 1, $F(3, 107) = 5.64, p < .01$, but attachment fearfulness did not contribute to the equation ($p = .79$). The addition of the interaction terms at Step 2 did not add to the model ($R^2\Delta = .002$), nor were there any significant fearfulness by gender ($p = .65$) or fearfulness by location ($p = .84$) interactions.

There was no relationship between attachment fearfulness and PCL:YV Factor 3 scores (Table 33). Although the model was significant at Step 1 ($F(3, 107) = 8.46, p < .01$), fearfulness did not significantly contribute to the equation ($p = .79$). The addition of the interaction terms at Step 2 did not add to the model ($R^2\Delta = .01$), nor did it reveal any significant fearfulness by gender ($p = .83$) or fearfulness by location ($p = .22$) interactions.

PCL:YV Factor 4 score were differentially related to attachment fearfulness for boys and girls (Table 34). Although the model was significant at Step 1 ($F(3, 106) = 59.83, p < .01$), attachment fearfulness did not contribute to the model ($p = .16$). However, at Step 2 there was a significant fearfulness by gender interaction ($p = .009$), and the main effect of fearfulness approached significance ($p = .08$). Figure 11 shows the interaction between fearfulness and gender, and reveals a strong negative relationship between attachment fearfulness and PCL:YV Factor 4 scores for boys, and a slight positive relationship for girls. In other words, for boys, the more attachment fearfulness they possessed, the less PCL:YV Factor 4 characteristics they exhibited. For girls, no strong relationship existed.

Preoccupation. The relationship between PCL:YV total and factor scores for attachment preoccupation are shown in Tables 35-39. As predicted, no relationships existed between any PCL:YV factors or total scores and a preoccupied attachment style.

As shown in Table 35, for PCL:YV total scores, the model was significant at Step 1 ($F(3, 108) = 23.99, p < .01$), but attachment preoccupation did not contribute to the model ($p = .18$). The addition of the interaction terms at Step 2 did not add to the predictive ability of the equation ($R^2\Delta = .009$), nor did it reveal any preoccupied attachment by gender ($p = .29$) or preoccupied attachment by location ($p = .59$) interactions.

For PCL:YV Factor 1 scores, the model was not significant at Step 1 ($F(3, 107) = 1.07, p = .37$), nor did the addition of the interaction terms at Step 2 and 3 result in a significant model change ($R^2\Delta = .003$; Table 36). For PCL:YV Factor 2 scores (Table 37), the model was significant at Step 1 ($F(3, 107) = 5.88, p < .01$), but preoccupation did not contribute to the model ($p = .41$). The addition of the interaction terms at Step 2 did not add to the predictive ability of the equation ($R^2\Delta = .007$), nor did it reveal any preoccupied attachment by gender ($p = .37$) or preoccupied attachment by location ($p = .88$) interactions. For PCL:YV Factor 3 scores (Table 38), the model was significant at Step 1 ($F(3, 107) = 8.17, p < .01$), but attachment preoccupation did not contribute to the equation ($p = .77$). The addition of the interaction terms at Step 2 did not result in a significant gain in predictive ability ($R^2\Delta = .005$), nor any significant preoccupied attachment by gender ($p = .48$) or preoccupied attachment by location ($p = .73$) interactions. For PCL:YV Factor 4 scores (Table 39), the model was significant at Step 1 ($F(3, 106) = 60.87, p < .01$), but preoccupation did not contribute to the equation ($p =$

.08). Step 2 revealed no significant preoccupied by location ($p = .15$) or preoccupied by gender ($p = .90$) interactions.

Summary of Results

In summary, several relationships between attachment and psychopathy emerged. First, for both boys and girls, attachment insecurity was related to the Affective Factor of the PCL:YV (Factor 2). In other words, participants rated lower on attachment security displayed more of the shallow affect, callousness, and lack of empathy characteristic of Factor 2 of the PCL:YV.

Differential relationships emerged for boys and girls in specific forms of attachment insecurity and psychopathy. For boys, those with higher PCL:YV Total and Factor 4 scores had less attachment anxiety. They had higher levels of attachment dismissiveness, and lower levels of attachment fearfulness. For girls, the opposite pattern emerged. Girls with higher PCL:YV Total and Factor 4 scores has more attachment anxiety, and lower levels of attachment dismissiveness. Tables 40 and 41 present a descriptive summary of the bivariate relationships between attachment and psychopathy dimensions for boys and girls, a well as partial correlations controlling for participant location.

DISCUSSION

A growing body of literature shows that psychopathic characteristics are identifiable in adolescence, and associated with negative, antisocial outcomes such as violence and criminality (e.g, Gretton et al., 2004), at least among boys (Odgers et al., 2005). This, in combination with a large, well-established body of research on the callous, violent, and instrumental crime disproportionately committed by adults who rate high on psychopathic characteristics, led many researchers to turn attention towards trying to understand the expression of the disorder at younger ages. The goal of this line of research is to understand the development and presentation of psychopathy early in life, and in particular, risk factors that may be malleable, so that risk can be reduced through effective prevention and early intervention. The present study examined the relationship between attachment and psychopathy in high-risk youths. It extends previous research by using interview measures for both attachment and psychopathy, and examining continuous ratings of attachment. It also includes both boys and girls, allowing for an examination of potential gender differences in these relationships. I predicted that youths scoring higher on psychopathy would exhibit lower attachment anxiety and higher attachment avoidance, and dismissing attachment.

Attachment

High levels of attachment insecurity were almost universal in both the forensic and mental health participants in the current study, as compared with community samples where secure attachment security predominates (Allen, Porter, McFarland, McElhany, &

Marsh, 2007; Bartholomew & Horowitz, 1991). The average rating of attachment security was just over 2 with a maximum rating of 4.5 (on a 1-9 scale where 9 reflects 'prototypical' security). This is consistent with previous research. Specifically, Scharfe (1996) reported a similar average security rating (2.7) among a clinical sample of adolescents, using the same measure of attachment. Youth in this study frequently described their caregivers as abusive, non-responsive or inconsistent and in turn their memories of caregiving were often inconsistent and poorly integrated. These findings are consistent with previous research showing high rates of attachment insecurity in adolescent clinical samples (e.g., Allen, Hauser, & Borman-Spurrell, 1996; Marsh, McFarland, Allen, McElhaney, & Land, 2003; Scharfe, 2002). It is not surprising given the high rates of parental psychopathology, including substance abuse, domestic violence, and abusive behaviour, as well as significant caregiver instability (including multiple foster placements) known to exist in these populations (e.g., Moretti, Obsuth, & Odgers, 2006). Turning to the dimensions of fearful, preoccupied and dismissing attachment, results showed that youths often presented with characteristics of several elements of attachment insecurity. All insecure dimensions were well represented within the present study, with no single dimension predominating.

Gender differences in attachment were also found in the present study. Consistent with previous literature (e.g., Bartholomew & Horowitz, 1991; Scharfe, 2002) girls showed higher levels of attachment anxiety than did boys. No significant gender differences were found in the avoidance dimension of attachment, although there was a trend for boys to show more avoidance on average than girls. Boys had higher mean levels of attachment dismissiveness than girls, but no other gender differences in specific

forms of attachment insecurity were found. Gender differences in attachment anxiety may reflect socialization practices that encourage girls and women to be more attuned to relationships than boys and men (e.g., Cross & Madson, 1997; Moretti & Higgins, 1999), and could also reflect biological differences between the sexes (Beech & Mitchell, 2005).

Psychopathic Characteristics

The distribution and level of psychopathic characteristics in the forensic and mental health samples in this study are consistent with previous research (e.g., Forth et al., 2003). PCL:YV scores of forensic participants were on average approximately one standard deviation above scores for participants from the mental health setting. This is consistent with prior findings summarized in the PCL:YV manual (Forth et al., 2003) showing that scores in forensic samples are higher on average than mental health or clinic samples. In the present study, differences were found in Factors 2, 3, and 4 of the PCL:YV; in other words, youths from forensic settings exhibited more affective, behavioural, and antisocial characteristics of psychopathy than did those in the mental health setting. They did not differ on the interpersonal features of psychopathy (such as glibness and superficial charm).

Gender differences were also found in mean PCL:YV scores, with girls scoring approximately one half a standard deviation lower than boys (3 points)⁷. This difference is larger than that shown in the PCL:YV manual, where the average difference was less than one point (Forth et al., 2003), although it is within the range of differences presented in the PCL:YV manual (the largest being three points). Gender differences in the present study were found only on the affective and antisocial aspects of psychopathy (Factors 2

⁷ This difference was slightly larger in the mental health sample than the forensic sample (2.9 vs 1.8).

and 4); boys scored higher on these factors than did girls. Despite these differences, the distribution of scores on the PCL:YV across samples confirms that psychopathy is not synonymous with criminality: that is, low scores could be found in the forensic sample and high scores could be found in the mental health sample. There was also considerable overlap in the distributions of PCL:YV scores between boys and girls.

Attachment Insecurity and Psychopathy

As hypothesized, for both boys and girls, less attachment security was associated with higher scores on the deficient affect component of psychopathy, as measured by the PCL:YV Factor 2, reflecting greater callousness, failure to accept responsibility, lack of empathy, and shallow affect. This finding is compelling given the restricted range and typically low scores on attachment security found in this sample. It speaks to the significance of attachment security even in small increments, and is consistent with the large body of research highlighting the importance of attachment security for normal development (e.g., Allen, Hauser, & Borman-Spurrell, 1996; Mikulincer & Shaver, 2005).

The present results are consistent with two previous studies on attachment and psychopathy that used self-report measures of attachment. The first found that adolescent boys on probation who showed more psychopathic characteristics reported less closeness to parents on a self-report measure of attachment (Kosson et al., 2002). The second found that incarcerated adolescent boys higher in psychopathic characteristics reported less closeness with fathers, but not mothers or peers (Flight & Forth, 2007). However, the focus on only one aspect of attachment in these studies contradicts research suggesting that “differences in patterns of attachment do not reflect weak versus strong attachments;

rather they reflect quality of attachment” (Guttman-Steinmetz & Crowell, 2006, p.442). In other words, attachment insecurity does not reflect a lack of closeness with parents per se, but rather specific disruptions in the relationship. Moreover, many forms of attachment insecurity exist, and it is important to distinguish between them. Consistent with this, Flight and Forth (2007) indicate that an examination of specific forms of attachment insecurity is an important step for future research.

The present study extends this earlier research on attachment and psychopathy in two important ways. First, the continuous rating system used in the present study allowed for an examination of multiple attachment patterns or strategies, and reflects the conceptual view that people do not present with uniform, categorical attachment ‘styles’ but rather can demonstrate a range of attachment behaviours from many attachment ‘prototypes’, and can also show differing levels of severity along various dimensions of attachment insecurity (Bartholomew et al., 2001). Second, the present study used interview measures of attachment. Research has found interview and questionnaire methods of assessing attachment to both be valid. However, research has yet to examine the ability of adolescents with significant psychopathology to provide meaningful self-reports of their attachments, although there is reason to be skeptical (Bartholomew & Moretti, 2002).

Results from this study may help to explain why psychopathy appears more stable in youth exposed to poor parenting. In a particularly relevant study, Frick and colleagues (2003) found that psychopathic characteristics were more stable among youths reporting negative parenting than among those reporting more positive parenting. This suggests that parenting may play a moderating role in the development of psychopathic

characteristics – possibly helping to attenuate psychopathic characteristics via the teaching of compensatory skills (such as encouraging empathic responses) in an otherwise at risk child – or, on the other hand, possibly pushing a child further towards psychopathy by engaging in negative or abusive caregiving. It is also possible, of course, that youths with unremitting psychopathy provoke poor parenting – this research does not address the issue of causality. However, it does raise the possibility of malleability in psychopathic characteristics depending on environmental factors.

Although parenting and attachment are by no means synonymous constructs, attachment insecurity does often occur in the context of negative and inconsistent parenting, and is one common consequence of poor parenting. Frick and colleagues' (2003) study also speaks to the issue of the stability of psychopathic characteristics in adolescence, and suggests that environmental factors may moderate the degree of stability of these developing traits, an encouraging finding when considered in light of possible prevention and intervention.

Research on empathy and moral development is relevant in interpreting the relation between attachment insecurity and deficient affective experience found in this study. Attachment insecurity is a known risk factor for poor empathy (LaFreniere & Sroufe, 1985; van der Mark et al., 2002), and a lack of empathy is a core element of the broader callousness and shallow affect characteristic of psychopathy (Cleckley, 1941; Hare, 1991; 2003), suggesting that the relationship between attachment insecurity and psychopathy might be partly mediated by empathy. From an attachment perspective, the development of empathy occurs first in a relational context: the child experiences nurturance and empathy from a caregiver, leading the child to feel understood and to

begin to understand relational processes. Extreme attachment insecurity often occurs in the context of very negative, insensitive, hostile, or even abusive caregiving (e.g., Allen et al., 2007). If part of empathy development first involves *experiencing* empathy and nurturance, it makes sense that children raised in abusive environments in the absence of reasonably consistent empathy and caring (as was typical for the adolescents interviewed in our study) would have more difficulty developing this skill. This is consistent with Camras and Rappaport (1993) who found that abused children exhibit less emotional expression than non-maltreated children, and suggests that there may be a process by which maltreated children learn to hide emotional reactions as an adaptive coping strategy in an abusive environment. The question remains whether this process may be extended to children actually *experiencing* less emotional reactions themselves, which could contribute to the shallow affect characteristic of psychopathy. The research on this is mixed (for a review, see Eisenberg, 2000), but does suggest both temperamental and environmental contributions to dispositional and situational empathy. With respect to the influence of attachment on empathy, Bartholomew and colleagues (2001) argue that “insecure models [of attachment] may predispose individuals to attribute hostile intent in ambiguous social situations, and they also may interfere with the ability to consider others’ perspectives and feelings (whether through an egocentric focus or a disengagement and lack of psychological awareness; p.220)”

A relationship between attachment security and psychopathy existed only for the deficient affective experience of psychopathy, although relations with all elements were predicted. This is consistent with emerging research suggesting that deficient affect may be core to psychopathy. In a recent study, Klaver (2006) found that the affective

symptoms of psychopathy appeared before the behavioural or interpersonal symptoms in a sample of incarcerated adolescents. It is possible that, developmentally, deficient affect may lead to other aspects of psychopathy via the inability to connect emotionally with others. Further research has also supported the notion that deficient affect is core to psychopathy. For example, Odgers and colleagues (2005) found that only the deficient affect factor of psychopathy was associated with physical and relational aggression among incarcerated adolescent females. Furthermore, in a laboratory paradigm, Loney and colleagues (2003) found that callous-unemotional traits of psychopathy (but not impulsive traits) were associated with slower reaction times to negative words among forensic adolescent males. Frick and others (e.g., Blair, 1999; Loney et al., 2003; Salekin & Frick, 2005) have studied children thought to be developing psychopathic characteristics and have argued that callous-unemotional traits are critical for identifying those at risk for developing psychopathy – over and above behavioural predictors such as CD or ADHD.

Gender Differences in Psychopathy and Attachment

The relation between attachment insecurity and the deficient affect was significant for both boys and girls in this study, however important gender differences were found in the relationships between attachment anxiety and psychopathy, and between dismissing attachment and psychopathy. These relationships were present in both PCL:YV total scores, and Factor 4 scores. These findings are not consistent with the notion that psychopathy should operate similarly for boys and girls (Forth et al., 2003).

As predicted, higher attachment anxiety in boys was related to lower scores on psychopathy. For boys, higher psychopathy scores were associated with higher levels of

attachment dismissiveness and lower levels of attachment fearfulness. Although dismissing attachment is characterized by low attachment anxiety and low avoidance, in this sample it appeared to be predominantly the low attachment anxiety that was characteristic of boys with more psychopathic characteristics, as there was a negative relationship between psychopathy and attachment fearfulness, which is also characterized by high avoidance (but also high attachment anxiety). In other words, it is the very low levels of attachment anxiety that is characteristic of boys with higher PCL:YV scores, rather than a specific behavioural response (avoidance). It should be noted that although attachment security is also associated with relatively little attachment anxiety, the levels of attachment anxiety present with a dismissing attachment style are abnormally low.

Contrary to predictions, no relation between attachment and avoidance was found. Previous research has suggested that attachment avoidance is associated with externalizing disorders (Rosenstein & Horowitz, 1996), but this research has not distinguished between fearful and dismissing avoidance, which is clearly an important distinction according to the present findings. Moreover, other attachment styles have also been associated with externalizing disorders (e.g., disorganized attachment; Green, Stanley, & Peters, 2007), suggesting that attachment may be associated with externalizing disorders in multiple ways. In the present study, it was clear that avoidance in the absence, but not presence, of anxiety, was associated with psychopathic characteristics for boys.

When examining the negative relationship between attachment anxiety and psychopathy for boys, we find that, in addition to total scores, the relationship was present in Factor 4 of the PCL:YV. Specifically, it was the antisocial features of

psychopathy such as criminal versatility, poor anger control, serious criminal behaviour, and violations of conditional release (rather than other elements of psychopathy) that were associated with dismissing attachment. Theoretically, individuals who possess more severe antisocial characteristics – should be less likely to experience anxiety about relationships and other people. As Bartholomew and colleagues (2001) articulate, “Dismissing individuals have learned to defensively deactivate the attachment system, reducing their tendency to experience the anxiety that typically follows unmet attachment needs (p.205).” In other words, individuals with dismissing attachment strategies do not acknowledge their distress to themselves or others and, presumably over time, are less likely to experience attachment anxiety. Moreover, by virtue of checking out of relationships, individuals lose the opportunity to understand others’ experiences and perspectives. The finding that it was the antisocial factor of the PCL:YV that was associated with dismissing attachment raises questions about just how psychopathy is related to specific forms of attachment insecurity. As discussed previously, I favour a conceptualization of psychopathy that considers the Factor 4 elements to be consequences of psychopathy, rather than core elements of the disorder. Theoretically, in this context one would predict that a relationship between dismissing attachment and antisocial behaviour might be mediated by other facets of psychopathy (specifically, deficient affect, and also possibly an impulsive behavioural style). It may be that dismissing attachment is related to factors not measured in the PCL, which in turn increase serious delinquent behavioural. Alternatively, dismissing attachment may not be associated with the core elements of psychopathy, but rather be a general risk factor for serious delinquent behaviour. Regardless of the specific relationships with psychopathy,

however, this finding does suggest that, for boys, attachment anxiety is a protective factor against leading a very antisocial lifestyle. Unfortunately, the mechanism behind this link remains unclear from the present research. It may be related to the protective role of anxiety in reducing the impairment associated with CD (Walker et al., 1991), although research on this topic has been mixed (e.g., Lahey et al., 2002). Future research could longitudinally examine pathways to psychopathy (such as CD and ADHD) and examine the role of attachment anxiety at various points along the developmental trajectory. This would help to clarify the reasons behind this link.

In contrast to the negative relationship between psychopathy and attachment anxiety for boys, girls with higher levels of psychopathy had *higher* levels of attachment anxiety. They were also less likely to show elements of dismissing attachment. Again, similar to boys, this relationship existed in the antisocial factor of psychopathy. Thus, girls with higher levels of attachment anxiety were more likely to show the antisocial traits of psychopathy, including poor anger control, criminal versatility, early behavioural problems, serious criminal behaviour, and revocations of conditional release.

These findings stand in direct contradiction to the hypothesis that girls with more psychopathic traits would show *higher* levels of dismissing attachment, as did boys, and they raise questions about the role of antisocial behaviour in the construct of psychopathy for adolescent girls. Why would girls exhibiting more characteristics of a syndrome characterized by a callous disconnection from other people and the commission of crimes against others also express more anxiety about relationships? Why wouldn't anxiety about relationships operate, as it seems to for boys, as a protective mechanism that deters girls from committing antisocial acts against others?

Relatively little research has investigated psychopathic characteristics among girls (Forth et al., 2003), suggesting that we should be cautious in assuming that a) all elements of the construct are similar across genders, and b) that it would show similar risk factors and trajectories. Moreover, the factor structure is also less well established for girls (Forth et al., 2003; Odgers et al., 2005) suggesting caution in interpreting the results from the individual factors, including the antisocial factor.

It is difficult to understand why gender differences might exist in the relationship between specific forms of attachment insecurity and the antisocial component of psychopathy. Recent work on gender differences in attachment offer some speculative explanations. First, a recent study showed that, from infancy, boys and girls respond differently to frightening maternal behaviour. Specifically, among a sample of low-income mothers and their 18-month old infants, girls were more likely to show approach behaviours in response to frightening behaviours by their mother, whereas boys were more likely to show avoidance, resistance, or conflict (David & Lyons-Ruth, 2005). These findings speak to a very early process (either biological or reflecting early differences in the socialization of infants) whereby boys' and girls' responses to negative or abusive caregiving differ significantly – with girls more likely to become more engaged in the relationship under sub-optimal circumstances than boys. From an early age, boys' responses are more likely to involve deactivation of attachment and avoidance of the caregiving figure, whereas girls' responses are more likely to involve the “tend or befriend” strategy of approaching the caregiver (Taylor et al., 2000). Over time, one could see how this would lead boys and girls down different pathways with respect to attachment in response to negative caregiving.

When examining gender differences in psychopathic characteristics in adolescents, some additional findings of interest also emerge. Odgers and colleagues (2005) studied the relationship between psychopathy and aggression among incarcerated adolescent girls, and found that only the deficient affect component of psychopathy was associated with aggression. Moreover, this relationship was no longer significant once the effects of girls' victimization experiences by mother were accounted for. When victimization by mother was incorporated in the model, it, rather than psychopathy, was predictive of aggression. The question is by what mechanism this occurs. It is possible that when girls experience high levels of attachment anxiety, their intense desire to get their attachment needs met leads them to engage in antisocial and aggressive behaviour in moments of emotional dysregulation. From an attachment point of view, anger can be a method by which to elicit caregiver attention and response. Bowlby (1973) argued that "the most violently angry and dysfunctional responses of all, it seems probable, are elicited in children and adolescents who not only experience repeated separations but are constantly subjected to the threat of being abandoned" (p. 288). In other words, these girls' extreme levels of attachment anxiety, and the intense self-focus that accompanies it, may serve as another pathway by which empathic responses are interfered with (in addition to the deficient affect pathway discussed above). This does suggest that the provocation of aggressive acts is likely different for these boys and girls, although the same blindness to the welfare of others may result. This would be consistent with research by Allen and colleagues (2002), which finds attachment preoccupation to be related to delinquency and aggression among adolescents.

Implications for Intervention

The present results raise some interesting questions regarding possible interventions for youth with psychopathic characteristics. Perhaps most fundamentally, they raise the question about whether interventions early in life designed to promote healthy parenting and attachment security might have a positive effect on groups at higher risk for psychopathy by encouraging the building blocks of empathy at an early stage. It is certainly possible to possess the behavioural characteristics consistent with psychopathy (such as impulsivity and sensation seeking behaviour) without showing the corresponding affective deficits core to psychopathy. It is possible that promoting empathy development from an attachment perspective might help to mitigate against the affective and interpersonal aspects of psychopathy.

Once the disorder is emerging in adolescence, it is interesting to consider the possible role of interventions for psychopathic characteristics and, particularly for the associated aggression and antisocial behaviour. The main findings of the present study suggest that the nature of psychopathy-related attachment insecurity differs for boys and girls in some important regards. Specifically, for boys, attachment anxiety seems to be a protective factor against committing seriously antisocial acts, whereas for girls it appears to be a risk factor. As such, it may make sense to have gender-specific treatments (or, more specifically, attachment-specific treatments). Both genders would appear to benefit from interventions designed to promote attachment security. However, for boys, a more behavioural treatment that looks at the costs of engaging in antisocial behaviour and understanding the impact of their behaviour and others might be more beneficial given their tendency towards dismissing attachment. This might be accomplished in part by

interventions designed to reduce attachment avoidance in relationships. However, for girls, more benefit might be derived from interventions designed to reduce attachment anxiety and promote affect regulation. This could allow girls to become less focused on others as a source of self-esteem and regulation, which likely plays a role in their increased engagement in antisocial behaviour. This seems to be an important area for further investigation given that “although change [in attachment] is possible at any point, the longer an individual follows a given path, the more difficult it will become to shift the direction of that path.” (Bartholomew et al., 2001, p. 207).

Limitations and Future Directions

Several limitations of the present study and areas for future research need to be addressed. First, the present study investigated a clinical high risk sample of aggressive youths who were relatively high in both psychopathic characteristics and attachment insecurity. They represent a group of adolescents at particular risk for violence and, as such, are an important population to study. However, by investigating a clinical sample we leave the question unanswered as to whether these relationships operate similarly in the general population. In other words, we do not see the relationship between these variables across the entire distribution. More specifically, we do not know whether attachment security operates in a linear fashion with deficient affect (where increases in security continue to be associated with less characteristics of deficient affect), or whether there is a ‘threshold’ of attachment security that is ‘good enough’. Future research investigating this relationship in other populations, and in community samples, would address this issue.

Another limitation of the present study is that, given the relatively small sample size, it was not possible to do a factor analysis for boys or girls to determine whether the appropriate factor structure was employed. As cited earlier, Odgers and colleagues (2005) failed to confirm either a three or four factor structure with adolescent girls in jail. The PCL:YV manual indicates that the factor structure should be interpreted with caution for adolescent girls, given the relatively low number of girls in the analysis. Future research is needed to understand whether the construct of psychopathy and its factor structure are similar for boys and girls. Another limitation of the relatively small sample size was the modest power to detect medium effect sizes (.65), and the inability to control for family-wise error, which would have reduced power to unacceptably low levels. While I believe it is important to study high-risk populations despite the relative difficulty of gathering data on them, it does make it difficult to obtain necessary sample sizes to be able to incorporate multiple variables into the models while maintaining sufficient power while controlling for family-wise error. One strength of the present study with respect to family-wise error is that, although multiple analyses were conducted, they remained part of one central question: what is the relationship between attachment and psychopathic characteristics. In other words, multiple independent questions were not addressed as part of the present research.

The present study does not directly address the issue of etiology with respect to attachment insecurity and psychopathy. One explanation for the attachment insecurity-psychopathy link is that caregiving factors *do* shape the course of psychopathic characteristics. However, it is also possible that something within the child is eliciting different parenting, which, in turn, affects the attachment relationship – the direction is

not clear from the present work. However, some related research does shed some light on this issue. In particular, research has investigated the relationship between a child's temperament and attachment security to determine whether temperamental differences can explain attachment patterns. In reviewing relevant research, Bartholomew and colleagues (2001) conclude that research does *not* support the view that attachment insecurity can be explained solely by temperamental differences in the child. However, research has not examined this issue specifically as it relates to psychopathy. Future research is necessary to thoroughly understand these links. Moreover, the present research was not able to investigate pathways that might mediate or moderate the relationship between attachment and psychopathic characteristics. This will be an important area for future research, as it is very likely that other variables interact with attachment and/or psychopathy, and an understanding of these pathways would help to clarify the nature of the relationships found in the present study. However, as discussed previously, power issues prevented further investigation of such possible pathways. One area in particular that would be interesting to investigate is the role of substance abuse in the relationship between attachment anxiety and delinquency for girls. Some research has suggested that adolescents who experience higher levels of attachment anxiety are more likely to engage in risky behaviour, including substance abuse (Marsh, McFarland, Allen, McElhaney, & Land, 2003) and adolescents with substance abuse problems are more likely to engage in criminal behaviour (White, Loeber, Stouthamer-Loeber, & Farrington, 1999).

Another area for future research is the nature of the disordered affect in psychopathy, and its relationship to attachment insecurity for boys and girls. In coding

the characteristics of Factor 2 of the PCL:YV, there are two primary ways that a youth may achieve a high score: through low levels of affect and empathy, or by presenting as emotionally dysregulated (therefore being described as ‘dramatic’ or ‘shallow’).

Although these both clearly represent disordered affect, it is not clear that they represent the same type of disorder. Recently, Penny (2007) studied the relationship between affect dysregulation and deficient affect in a similar sample to the present study. Using structural equation modelling, she found little empirical overlap between the two constructs. Although this did not directly address the issue of heterogeneity in Factor 2 of the PCL:YV (as she did not distinguish between ‘types’ of high Factor 2 scores), it does raise the possibility of important differences between individuals scoring high on Factor 2 of the PCL:YV. By examining these two constructs together, some gender differences might be being masked. For example, it is possible that high-scoring girls are more likely to express a more ‘dysregulated’ form of affect while high-scoring boys are more likely to express a more ‘deficient’ form of affect. This is an important area for future research in light of the gender differences found in the attachment-psychopathy relationship. In particular, we would expect a positive relationship between attachment anxiety and affect dysregulation, but a negative relationship between attachment anxiety and deficient affect.

It is possible, on the surface at least, that there could have been some measurement overlap between the interviews for attachment and psychopathy that could have partly accounted for the findings between attachment insecurity and the affective deficits of psychopathy. Although these interviews were conducted and coded by separate raters who were blind to the information in the other interview, the two interviews did

both ask about family relationships (although this comprises a very minor part of the psychopathy interview). However, the actual content of the questions, as well as the dimensions on which they were coded are very distinctive, making this a rather remote possibility.

The relationships examined in the present study would benefit from longitudinal investigation, to understand how these variables interact with each other over time. Furthermore, an investigation of the interactions between temperamental vulnerabilities and caregiving factors would allow for a more comprehensive understanding of the pathways that lead an adolescent towards, or away from, a psychopathic personality. With respect to links with aggression, future research would do well to examine specific types of aggression and *functions* of aggression when trying to understand the links between attachment and these outcomes. As discussed previously, aggression can serve several different functions and it is very likely that they have different relationships to specific forms of attachment insecurity. Bartholomew and colleagues (2001) reviewed the research on dismissing attachment and antisocial behaviour, and indicated that although some associations have been found, the research is not consistent. This is likely because different types of antisocial behaviour are examined together when, in reality, they may represent very different behaviours. For example, instrumental and relational aggression are quite different in their goals (Odgers et al., 2005).

In summary, the present study provides preliminary information on the links between attachment insecurity and psychopathic characteristics among aggressive boys and girls. Further work will help to develop a more comprehensive picture of the

interacting risk and protective factors that lead a youth towards, or away from,
psychopathic characteristics.

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APPENDICES

Appendix A: Tables

Table 1: Key Characteristics of PCL Factors

| PCL:YV Factors | Key Characteristics |
|--------------------|---|
| Interpersonal (F1) | Glib and superficially charming; tend to lie and manipulate for personal gain |
| Emotional (F2) | Deficiencies in empathy and affective experiences; callous |
| Behavioural (F3) | Impulsivity, sensation seeking |
| Lifestyle (F4): | Criminal and violent criminal behaviour |

Table 2: Full Sample (N = 179) versus Sample with Complete Data (n = 109) and Demographic/Clinical Variables

| Variable | Complete Sample | Full Data Only |
|---------------------------------------|-----------------|----------------|
| Age (M, <i>SD</i>) | 15.3 (1.5) | 15.4 (1.5) |
| Ethnicity (%) | | |
| Caucasian | 65.4 | 63.3 |
| Aboriginal | 22.9 | 26.6 |
| Other/Mixed | 10.6 | 10.1 |
| Biological Parents Legal Guardian (%) | 61.5 | 58.7 |
| Psychiatric Diagnoses (%) | | |
| ADHD | 20.1 | 17.5 |
| Conduct Disorder | 56.7 | 57.7 |
| Alcohol Dependence | 34.8 | 39.2 |
| Alcohol Abuse | 9.6 | 6.2 |
| Marijuana Dependence | 42.4 | 42.7 |
| Marijuana Abuse | 11.2 | 11.5 |
| Street Drug Dependence | 30.8 | 31.6 |
| Street Drug Abuse | 0.8 | 1.1 |
| Major Depression | 24.2 | 23.4 |
| Generalized Anxiety | 14.6 | 9.7 |

Table 3: Full Sample versus Sample with Complete Data and Key Study Variables

| Variable | <i>M (SD)</i> | |
|------------------------------|-----------------|----------------|
| | Complete Sample | Full Data Only |
| Psychopathy | | |
| PCL:YV Total Scores | 21.4 (7.2) | 21.0 (6.9) |
| PCL:YV Factor 1 Scores | 3.4 (1.8) | 3.3 (1.7) |
| PCL:YV Factor 2 Scores | 4.2 (1.9) | 4.1 (1.8) |
| PCL:YV Factor 3 Scores | 6.3 (2.0) | 6.2 (1.9) |
| PCL:YV Factor 4 Scores | 6.1 (2.9) | 6.1 (2.9) |
| Attachment Dimensions | | |
| Secure | 2.3 (.72) | 2.3 (.74) |
| Fearful | 4.2 (1.6) | 4.1 (1.6) |
| Preoccupied | 3.4 (1.7) | 3.5 (1.7) |
| Dismissing | 3.1 (1.4) | 3.1 (1.4) |
| Anxiety | 2.2 (3.0) | 2.2 (3.1) |
| Avoidance | 1.6 (3.1) | 1.4 (3.2) |

Table 4: Gender and Demographic/Clinical Variables

| Variable | <i>M (SD) or %</i> | | <i>t/χ²</i> |
|---------------------------------------|--------------------|------------|------------------------|
| | Boys | Girls | |
| Age | 15.5 (1.5) | 15.2 (1.4) | 1.4 |
| Ethnicity (%) | | | 5.4 |
| Caucasian | 72.4 | 52.9 | |
| Aboriginal | 22.4 | 31.4 | |
| Other/Mixed | 5.2 | 15.7 | |
| Biological Parents Legal Guardian (%) | 62.1 | 54.9 | 0.6 |
| Psychiatric Diagnoses (%) | | | |
| ADHD | 20.8 | 14.3 | .72 |
| Conduct Disorder | 56.3 | 59.2 | .09 |
| Alcohol Dependence | 35.4 | 42.9 | .56 |
| Alcohol Abuse | 8.3 | 4.1 | .76 |
| Marijuana Dependence | 47.9 | 37.5 | 1.1 |
| Marijuana Abuse | 10.4 | 12.5 | .11 |
| Street Drug Dependence | 25.5 | 37.5 | 1.6 |
| Street Drug Abuse | 0 | 2.1 | 1.0 |
| Major Depression | 14.9 | 31.9 | 3.8* |
| Generalized Anxiety | 10.6 | 8.7 | .10 |

p < .05

Table 5: Location (Mental Health vs. Forensic) and Demographic Variables

| Variable | <i>M (SD)</i> | | <i>t/χ²</i> |
|---------------------------------------|---------------|---------------|------------------------|
| | Forensic | Mental Health | |
| Age | 16.0 (1.3) | 14.5 (1.1) | 6.3** |
| Ethnicity (%) | | | 7.5* |
| Caucasian | 52.5 | 77.1 | |
| Aboriginal | 36.1 | 14.6 | |
| Other/Mixed | 11.5 | 8.3 | |
| Biological Parents Legal Guardian (%) | 57.4 | 60.4 | 0.1 |
| Psychiatric Diagnoses (%) | | | |
| ADHD | 16.0 | 19.1 | .17 |
| Conduct Disorder | 74.0 | 40.4 | 11.2** |
| Alcohol Dependence | 60.0 | 17.0 | 18.8** |
| Alcohol Abuse | 6.0 | 6.4 | 0.01 |
| Marijuana Dependence | 59.2 | 25.5 | 11.1** |
| Marijuana Abuse | 14.3 | 8.5 | .79 |
| Street Drug Dependence | 50.0 | 12.8 | 15.24** |
| Street Drug Abuse | 2.1 | 0 | 1.0 |
| Major Depression | 18.8 | 28.3 | 1.2 |
| Generalized Anxiety | 6.4 | 13.0 | 1.2 |

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

Table 6: PCL:YV Scores by Gender.

| | Girls | Boys |
|---|-----------|-----------|
| PCL:YV Factor 1 (Interpersonal) | 3.0 (1.5) | 3.5 (1.9) |
| PCL:YV Factor 2 (Affective) ^a | 3.7 (2.1) | 4.4 (1.5) |
| PCL:YV Factor 3 (Behavioural) | 6.0 (1.8) | 6.4 (2.0) |
| PCL:YV Factor 4 (Antisocial) ^b | 5.4 (3.1) | 6.7 (2.6) |

^a Boys' Factor 2 scores were significantly higher than girls' on average, $t(106) = 2.17, p < .05$.

^b Boys' Factor 4 scores were significantly higher than girls' on average, $t(105) = 2.34, p < .05$.

Table 7: Attachment Scores by Location (N = 109)

| | M (SD) | |
|-------------|-----------|---------------|
| | Forensic | Mental Health |
| Secure | 2.3 (.73) | 2.2 (.76) |
| Fearful | 4.3 (1.7) | 3.8 (1.4) |
| Preoccupied | 3.4 (1.9) | 3.6 (1.5) |
| Dismissing | 2.9 (1.3) | 3.4 (1.4) |
| Anxiety | 2.5 (2.9) | 1.8 (3.3) |
| Avoidance | 1.4 (3.5) | 1.4 (2.7) |

Table 8: Attachment Scores by Gender

| | M (SD) | |
|-------------------------|-----------|-----------|
| | Girls | Boys |
| Secure | 2.3 (.71) | 2.3 (.77) |
| Fearful | 4.2 (1.6) | 4.0 (1.6) |
| Preoccupied | 3.8 (1.7) | 3.2 (1.7) |
| Dismissing ^a | 2.8 (1.2) | 3.3 (1.5) |
| Anxiety ^b | 2.9 (2.6) | 1.6 (3.3) |
| Avoidance | .87 (3.1) | 1.9 (3.1) |

^a Boys had significantly higher mean dismissing scores than girls, $t(107) = 2.1, p = .04$.

^b Girls had significantly higher mean anxiety scores than boys, $t(107) = -2.2, p = .03$.

Table 9: Intercorrelations between Attachment Styles

| | 1 | 2 | 3 | 4 | 5 | 6 |
|-------------|-----|------|---------|---------|---------|---------|
| Secure | 1.0 | 0.02 | -0.24* | -0.07 | -0.33** | -0.12 |
| Fearful | | 1.0 | -0.43** | -0.38** | 0.44** | 0.58** |
| Preoccupied | | | 1.0 | -0.38** | 0.56** | -0.88** |
| Dismissing | | | | 1.0 | -0.84** | 0.47** |
| Anxiety | | | | | 1.0 | -0.37** |
| Avoidance | | | | | | 1.0 |

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

Table 10: Regression Examining the Relationship between Attachment Security, Gender, and Location in Predicting PCL:YV Total Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|---------------------|---------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -2.24 (1.04) | -0.16 | -2.15 | 0.03 |
| Location | -8.22 (1.05) | -0.60 | -7.81 | <0.01 |
| Attachment Security | -0.42 (0.71) | -0.05 | -0.59 | 0.56 |
| Step 2 | | | | |
| Gender | -3.05 (3.47) | -0.22 | -0.88 | 0.38 |
| Location | -10.20 (3.43) | -0.74 | -2.97 | 0.004 |
| Attachment Security | -2.16 (3.25) | -0.23 | -0.67 | 0.51 |
| Security X Gender | 0.33 (1.45) | 0.08 | 0.23 | 0.82 |
| Security X Location | 0.87 (1.45) | 0.20 | 0.60 | 0.55 |

Table 11: Regression Examining the Relationship between Attachment Security, Gender, and Location in Predicting PCL:YV Factor 1 Scores

| | B (S.E.) | β | <i>t</i> | <i>P</i> |
|---------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.49 (0.34) | -0.14 | -1.46 | 0.15 |
| Location | -0.26 (0.34) | -0.07 | -0.77 | 0.45 |
| Attachment Security | -0.03 (0.23) | -0.01 | -0.12 | 0.90 |
| Step 2 | | | | |
| Gender | -0.08 (1.14) | -0.02 | -0.07 | 0.94 |
| Location | -0.00 (1.12) | 0.00 | -0.00 | >0.99 |
| Attachment Security | 0.38 (1.06) | 0.16 | 0.36 | 0.72 |
| Security X Gender | -0.18 (0.47) | -0.16 | -0.37 | 0.71 |
| Security X Location | -0.11 (0.47) | -0.10 | -0.23 | 0.82 |

Table 12: Regression Examining the Relationship between Attachment Security, Gender and Location in Predicting PCL:YV Factor 2 Scores

| | B (S.E.) | β | <i>t</i> | <i>P</i> |
|---------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.63 (0.33) | -0.17 | -1.93 | 0.06 |
| Location | -1.23 (0.33) | -0.33 | -3.73 | <0.01 |
| Attachment Security | -0.58 (0.22) | -0.23 | -2.62 | 0.01 |
| Step 2 | | | | |
| Gender | -0.43 (1.10) | -0.12 | -0.39 | 0.70 |
| Location | -1.53 (1.08) | -0.41 | -1.41 | 0.16 |
| Attachment Security | -0.64 (1.03) | -0.26 | -0.63 | 0.53 |
| Security X Gender | -0.09 (0.46) | -0.08 | -0.20 | 0.84 |
| Security X Location | 0.14 (0.46) | 0.11 | 0.30 | 0.77 |

Table 13: Regression Examining the Relationship between Attachment Security, Gender and Location in Predicting PCL:YV Factor 3 Scores

| | B (S.E.) | β | <i>t</i> | <i>P</i> |
|---------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.27 (0.34) | -0.07 | -0.80 | 0.43 |
| Location | -1.64 (0.34) | -0.43 | -4.86 | <0.01 |
| Attachment Security | -0.21 (0.23) | -0.08 | -0.94 | 0.35 |
| Step 2 | | | | |
| Gender | -0.84 (1.12) | -0.22 | -0.75 | 0.46 |
| Location | -2.77 (1.11) | -0.72 | -2.50 | 0.01 |
| Attachment Security | -1.27 (1.05) | -0.49 | -1.20 | 0.23 |
| Security X Gender | 0.24 (0.47) | 0.20 | 0.50 | 0.62 |
| Security X Location | 0.49 (0.47) | 0.40 | 1.06 | 0.29 |

Table 14: Regression Examining the Relationship between Attachment Security, Gender and Location in Predicting PCL:YV Factor 4 Scores

| | B (S.E.) | β | <i>t</i> | <i>P</i> |
|---------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.96 (0.35) | -0.17 | -2.77 | <0.01 |
| Location | -4.42 (0.35) | -0.76 | -12.61 | <0.01 |
| Attachment Security | <0.01 (0.23) | 0.00 | 0.02 | 0.99 |
| Step 2 | | | | |
| Gender | -0.76 (1.16) | -0.13 | -0.65 | 0.52 |
| Location | -3.81 (1.15) | -0.66 | -3.32 | <0.01 |
| Attachment Security | 0.51 (1.09) | 0.13 | 0.47 | 0.64 |
| Security X Gender | -0.08 (0.49) | -0.05 | -0.17 | 0.87 |
| Security X Location | -0.27 (0.48) | -0.14 | -0.56 | 0.58 |

Table 15: Regression Examining the Relationship between Attachment Avoidance, Gender, and Location in Predicting PCL:YV Total Scores

| | B (S.E.) | β | <i>t</i> | <i>P</i> |
|----------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -2.40 (1.05) | -0.18 | -2.28 | 0.03 |
| Location | -8.14 (1.05) | -0.59 | -7.79 | <0.01 |
| Attachment Avoidance | -0.14 (0.17) | -0.07 | -0.86 | 0.39 |
| Step 2 | | | | |
| Gender | -2.06 (1.16) | -0.15 | -1.78 | 0.08 |
| Location | -8.27 (1.17) | -0.60 | -7.05 | <0.01 |
| Attachment Avoidance | 0.06 (0.72) | 0.03 | 0.08 | 0.94 |
| Avoidance X Gender | -0.32 (0.34) | -0.22 | -0.93 | 0.35 |
| Avoidance X Location | 0.20 (0.36) | 0.13 | 0.56 | 0.57 |

Table 16: Regression Examining the Relationship between Attachment Avoidance, Gender, and Location in Predicting PCL:YV Factor 1 Scores

| | B (S.E.) | β | <i>t</i> | <i>P</i> |
|----------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.54 (0.34) | -0.15 | -1.57 | 0.12 |
| Location | -0.26 (0.34) | -0.07 | -0.76 | 0.45 |
| Attachment Avoidance | -0.04 (0.05) | -0.07 | -0.72 | 0.47 |
| Step 2 | | | | |
| Gender | -0.55 (0.37) | -0.16 | -1.46 | 0.15 |
| Location | -0.35 (0.38) | -0.10 | -0.93 | 0.35 |
| Attachment Avoidance | -0.13 (0.24) | -0.23 | -0.52 | 0.60 |
| Avoidance X Gender | -0.01 (0.11) | -0.03 | -0.09 | 0.93 |
| Avoidance X Location | 0.07 (0.12) | 0.19 | 0.65 | 0.52 |

Table 17: Regression Examining the Relationship between Attachment Avoidance, Gender and Location in Predicting PCL:YV Factor 2 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|----------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.63 (0.34) | -.170 | -1.84 | 0.07 |
| Location | -1.16 (0.34) | -.312 | -3.43 | <0.01 |
| Attachment Avoidance | 0.03 (0.05) | .053 | 0.58 | 0.57 |
| Step 2 | | | | |
| Gender | -0.51 (0.37) | -.138 | -1.37 | 0.18 |
| Location | -1.14 (0.38) | -.306 | -3.00 | <0.01 |
| Attachment Avoidance | 0.16 (0.24) | .270 | 0.66 | 0.51 |
| Avoidance X Gender | -0.10 (0.11) | -.256 | -0.89 | 0.37 |
| Avoidance X Location | 0.01 (0.12) | .031 | 0.11 | 0.91 |

Table 18: Regression Examining the Relationship between Attachment Avoidance, Gender and Location in Predicting PCL:YV Factor 3 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|----------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.25 (0.34) | -0.07 | -0.73 | 0.47 |
| Location | -1.62 (0.34) | -0.42 | -4.79 | <0.01 |
| Attachment Avoidance | 0.03 (0.05) | 0.05 | 0.56 | 0.58 |
| Step 2 | | | | |
| Gender | -0.19 (0.37) | -0.05 | -0.51 | 0.61 |
| Location | -1.66 (0.38) | -0.43 | -4.38 | <0.01 |
| Attachment Avoidance | 0.05 (0.24) | 0.08 | 0.20 | 0.84 |
| Avoidance X Gender | -0.06 (0.11) | -0.14 | -0.52 | 0.61 |
| Avoidance X Location | 0.05 (0.12) | 0.12 | 0.43 | 0.67 |

Table 19: Regression Examining the Relationship between Attachment Avoidance, Gender and Location in Predicting PCL:YV Factor 4 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|----------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -1.04 (0.35) | -0.18 | -2.97 | <0.01 |
| Location | -4.42 (0.35) | -0.76 | -12.76 | <0.01 |
| Attachment Avoidance | -0.07 (0.06) | -0.08 | -1.24 | 0.22 |
| Step 2 | | | | |
| Gender | -1.09 (0.38) | -0.19 | -2.88 | <0.01 |
| Location | -4.63 (0.39) | -0.80 | -12.00 | <0.01 |
| Attachment Avoidance | -0.28 (0.24) | -0.31 | -1.16 | 0.25 |
| Avoidance X Gender | 0.01 (0.11) | 0.02 | 0.09 | 0.93 |
| Avoidance X Location | 0.15 (0.12) | 0.23 | 1.26 | 0.21 |

Table 20: Regression Examining the Relationship between Attachment Anxiety, Gender and Location in Predicting PCL:YV Total Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|--------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -2.14 (1.07) | -0.16 | -2.01 | 0.05 |
| Location | -8.23 (1.06) | -0.60 | -7.78 | <0.01 |
| Attachment Anxiety | -0.08 (0.17) | -0.04 | -0.48 | 0.63 |
| Step 2 | | | | |
| Gender | -4.11 (1.37) | -0.30 | -3.00 | <0.01 |
| Location | -8.82 (1.27) | -0.64 | -6.92 | <0.01 |
| Attachment Anxiety | -1.54 (0.75) | -0.69 | -2.05 | 0.04 |
| Anxiety X Gender | 0.80 (0.36) | 0.56 | 2.24 | 0.03 |
| Anxiety X Location | 0.25 (0.34) | 0.18 | 0.75 | 0.46 |

Table 21: Regression Examining the Relationship between Attachment Anxiety, Gender and Location in Predicting PCL:YV Factor 1 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|--------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.44 (0.35) | -0.13 | -1.26 | 0.21 |
| Location | -0.29 (0.34) | -0.08 | -0.84 | 0.41 |
| Attachment Anxiety | -0.04 (0.06) | -0.07 | -0.70 | 0.48 |
| Step 2 | | | | |
| Gender | -0.80 (0.47) | -0.23 | -1.70 | 0.09 |
| Location | -0.60 (0.42) | -0.17 | -1.43 | 0.16 |
| Attachment Anxiety | -0.42 (0.26) | -0.74 | -1.64 | 0.10 |
| Anxiety X Gender | 0.13 (0.12) | 0.36 | 1.10 | 0.28 |
| Anxiety X Location | 0.14 (0.11) | 0.38 | 1.22 | 0.23 |

Table 22: Regression Examining the Relationship between Attachment Anxiety, Gender and Location in Predicting PCL:YV Factor 2 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|--------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.74 (0.35) | -0.20 | -2.15 | 0.03 |
| Location | -1.12 (0.34) | -0.30 | -3.30 | <0.01 |
| Attachment Anxiety | 0.06 (0.06) | 0.09 | 0.97 | 0.34 |
| Step 2 | | | | |
| Gender | -1.29 (0.46) | -0.35 | -2.79 | <0.01 |
| Location | -1.09 (0.42) | -0.29 | -2.60 | 0.01 |
| Attachment Anxiety | -0.20 (0.25) | -0.32 | -0.77 | 0.44 |
| Anxiety X Gender | 0.22 (0.12) | 0.55 | 1.79 | 0.08 |
| Anxiety X Location | -0.03 (0.11) | -0.07 | -0.23 | 0.82 |

Table 23: Regression Examining the Relationship between Attachment Anxiety, Gender and Location in Predicting PCL:YV Factor 3 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|--------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.19 (0.34) | -0.05 | -0.56 | 0.58 |
| Location | -1.66 (0.34) | -0.43 | -4.90 | <0.01 |
| Attachment Anxiety | -0.06 (0.06) | -0.10 | -1.08 | 0.28 |
| Step 2 | | | | |
| Gender | -0.35 (0.47) | -0.09 | -0.75 | 0.46 |
| Location | -1.87 (0.42) | -0.49 | -4.41 | <0.01 |
| Attachment Anxiety | -0.27 (0.26) | -0.43 | -1.05 | 0.30 |
| Anxiety X Gender | 0.06 (0.12) | 0.14 | 0.46 | 0.65 |
| Anxiety X Location | 0.09 (0.11) | 0.23 | 0.80 | 0.42 |

Table 24: Regression Examining the Relationship between Attachment Anxiety, Gender and Location in Predicting PCL:YV Factor 4 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|--------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.94 (0.36) | -0.16 | -2.64 | 0.01 |
| Location | -4.43 (0.35) | -0.76 | -12.60 | <0.01 |
| Attachment Anxiety | -0.01 (0.06) | -0.01 | -0.23 | 0.82 |
| Step 2 | | | | |
| Gender | -1.77 (0.46) | -0.31 | -3.83 | <0.01 |
| Location | -4.21 (0.42) | -0.73 | -10.03 | <0.01 |
| Attachment Anxiety | -0.28 (0.26) | -0.29 | -1.08 | 0.28 |
| Anxiety X Gender | 0.33 (0.12) | 0.54 | 2.74 | <0.01 |
| Anxiety X Location | -0.12 (0.11) | -0.20 | -1.08 | 0.28 |

Table 25: Regression Examining the Relationship between Attachment Dismissiveness, Gender and Location in Predicting PCL:YV Total Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|---------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -1.95 (1.06) | -0.14 | -1.84 | 0.07 |
| Location | -8.43 (1.06) | -0.61 | -7.93 | <0.01 |
| Attachment Dismissiveness | 0.50 (0.39) | 0.10 | 1.70 | 0.21 |
| Step 2 | | | | |
| Gender | 2.66 (2.61) | 0.19 | 1.01 | 0.31 |
| Location | -7.11 (2.60) | -0.52 | -2.73 | <0.01 |
| Attachment Dismissiveness | 3.24 (1.53) | 0.65 | 2.12 | 0.04 |
| Dismissiveness X Gender | -1.56 (0.80) | -0.51 | -1.95 | 0.05 |
| Dismissiveness X Location | -0.44 (0.76) | -0.18 | -0.58 | 0.57 |

Table 26: Regression Examining the Relationship between Attachment Dismissiveness, Gender and Location in Predicting PCL:YV Factor 1 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|---------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.44 (0.35) | -0.13 | -1.26 | 0.21 |
| Location | -0.30 (0.35) | -0.09 | -0.87 | 0.39 |
| Attachment Dismissiveness | 0.08 (0.13) | 0.06 | 0.64 | 0.53 |
| Step 2 | | | | |
| Gender | 0.08 (0.88) | 0.02 | 0.09 | 0.93 |
| Location | 0.37 (0.87) | 0.11 | 0.43 | 0.67 |
| Attachment Dismissiveness | 0.64 (0.53) | 0.50 | 1.22 | 0.22 |
| Dismissiveness X Gender | -0.19 (0.28) | -0.23 | -0.67 | 0.51 |
| Dismissiveness X Location | -0.22 (0.25) | -0.35 | -0.86 | 0.39 |

Table 27: Regression Examining the Relationship between Attachment Dismissiveness, Gender and Location in Predicting PCL:YV Factor 2 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|---------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.61 (0.35) | -0.16 | -1.75 | 0.08 |
| Location | -1.20 (0.34) | -0.32 | -3.49 | <0.01 |
| Attachment Dismissiveness | 0.09 (0.13) | 0.06 | 0.67 | 0.51 |
| Step 2 | | | | |
| Gender | 0.63 (0.88) | 0.17 | 0.72 | 0.48 |
| Location | -1.52 (0.86) | -0.41 | -1.78 | 0.08 |
| Attachment Dismissiveness | 0.50 (0.52) | 0.36 | 0.95 | 0.35 |
| Dismissiveness X Gender | -0.42 (0.28) | -0.48 | -1.52 | 0.13 |
| Dismissiveness X Location | 0.10 (0.25) | 0.15 | 0.38 | 0.70 |

Table 28: Regression Examining the Relationship between Attachment Dismissiveness, Gender and Location in Predicting PCL:YV Factor 3 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|---------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.15 (0.34) | -0.04 | -0.44 | 0.66 |
| Location | -1.72 (0.34) | -0.45 | -5.03 | <0.01 |
| Attachment Dismissiveness | 0.20 (0.13) | 0.14 | 1.53 | 0.13 |
| Step 2 | | | | |
| Gender | -0.25 (0.88) | -0.07 | -0.28 | 0.78 |
| Location | -1.05 (0.86) | -0.28 | -1.23 | 0.22 |
| Attachment Dismissiveness | 0.47 (0.52) | 0.34 | 0.91 | 0.37 |
| Dismissiveness X Gender | 0.02 (0.28) | 0.03 | 0.09 | 0.93 |
| Dismissiveness X Location | -0.21 (0.25) | -0.31 | -0.84 | 0.40 |

Table 29: Regression Examining the Relationship between Attachment Dismissiveness, Gender and Location in Predicting PCL:YV Factor 4 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|---------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.87 (0.36) | -0.15 | -2.44 | 0.02 |
| Location | -4.50 (0.35) | -0.78 | -12.71 | <0.01 |
| Attachment Dismissiveness | 0.14 (0.13) | 0.07 | 1.09 | 0.28 |
| Step 2 | | | | |
| Gender | 1.42 (0.87) | 0.25 | 1.63 | 0.11 |
| Location | -5.59 (0.85) | -0.96 | -6.57 | <0.01 |
| Attachment Dismissiveness | 0.66 (0.52) | 0.31 | 1.28 | 0.20 |
| Dismissiveness X Gender | -0.77 (0.27) | -0.56 | -2.83 | <0.01 |
| Dismissiveness X Location | 0.34 (0.25) | 0.33 | 1.36 | 0.18 |

Table 30: Regression Examining the Relationship between Attachment Fearfulness, Gender and Location in Predicting PCL:YV Total Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|------------------------|---------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -2.15 (1.03) | -0.16 | -2.08 | 0.04 |
| Location | -8.41 (1.05) | -0.61 | -8.02 | <0.01 |
| Attachment Fearfulness | -0.51 (0.32) | -0.12 | -1.58 | 0.12 |
| Step 2 | | | | |
| Gender | -5.78 (2.87) | -0.42 | -2.01 | 0.05 |
| Location | -12.14 (2.96) | -0.88 | -4.11 | <0.01 |
| Attachment Fearfulness | -2.87 (1.38) | -0.67 | -2.08 | 0.04 |
| Fearfulness X Gender | 0.81 (0.66) | 0.39 | 1.23 | 0.22 |
| Fearfulness X Location | 0.87 (0.70) | 0.36 | 1.24 | 0.22 |

Table 31: Regression Examining the Relationship between Attachment Fearfulness, Gender and Location in Predicting PCL:YV Factor 1 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.46 (0.34) | -0.13 | -1.37 | 0.17 |
| Location | -0.33 (0.34) | -0.09 | -0.96 | 0.34 |
| Attachment Fearfulness | -0.15 (0.11) | -0.14 | -1.42 | 0.16 |
| Step 2 | | | | |
| Gender | -1.23 (0.94) | -0.35 | -1.32 | 0.19 |
| Location | -1.72 (0.96) | -0.49 | -1.78 | 0.08 |
| Attachment Fearfulness | -0.83 (0.45) | -0.77 | -1.84 | 0.07 |
| Fearfulness X Gender | 0.16 (0.21) | 0.29 | 0.73 | 0.47 |
| Fearfulness X Location | 0.34 (0.23) | 0.55 | 1.48 | 0.14 |

Table 32: Regression Examining the Relationship between Attachment Fearfulness, Gender and Location in Predicting PCL:YV Factor 2 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.67 (0.34) | -0.18 | -1.99 | 0.05 |
| Location | -1.15 (0.34) | -0.31 | -3.35 | <0.01 |
| Attachment Fearfulness | 0.03 (0.11) | 0.03 | 0.27 | 0.79 |
| Step 2 | | | | |
| Gender | -1.06 (0.96) | -0.29 | -1.11 | 0.27 |
| Location | -1.00 (0.98) | -0.27 | -1.02 | 0.31 |
| Attachment Fearfulness | -0.06 (0.46) | -0.05 | -0.12 | 0.90 |
| Fearfulness X Gender | 0.10 (0.22) | 0.18 | 0.46 | 0.65 |
| Fearfulness X Location | -0.05 (0.23) | -0.07 | -0.21 | 0.84 |

Table 33: Regression Examining the Relationship between Attachment Fearfulness, Gender and Location in Predicting PCL:YV Factor 3 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.26 (0.34) | -0.07 | -0.78 | 0.34 |
| Location | -1.66 (0.34) | -0.43 | -4.88 | <0.01 |
| Attachment Fearfulness | -0.09 (0.11) | -0.08 | -0.89 | 0.38 |
| Step 2 | | | | |
| Gender | -0.57 (0.95) | -0.15 | -0.61 | 0.55 |
| Location | -2.81 (0.97) | -0.73 | -2.89 | <0.01 |
| Attachment Fearfulness | -0.54 (0.45) | -0.46 | -1.20 | 0.23 |
| Fearfulness X Gender | 0.05 (0.22) | 0.08 | 0.22 | 0.83 |
| Fearfulness X Location | 0.29 (0.23) | 0.43 | 1.24 | 0.22 |

Table 34: Regression Examining the Relationship between Attachment Fearfulness, Gender and Location in Predicting PCL:YV Factor 4 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.93 (0.34) | -0.16 | -2.71 | <0.01 |
| Location | -4.50 (0.35) | -0.78 | -12.85 | <0.01 |
| Attachment Fearfulness | -0.15 (0.11) | -0.09 | -1.42 | 0.16 |
| Step 2 | | | | |
| Gender | -3.19 (0.94) | -0.55 | -3.39 | <0.01 |
| Location | -4.19 (0.97) | -0.72 | -4.33 | <0.01 |
| Attachment Fearfulness | -0.81 (0.45) | -0.45 | -1.78 | 0.08 |
| Fearfulness X Gender | 0.57 (0.22) | 0.65 | 2.65 | <0.01 |
| Fearfulness X Location | -0.13 (0.23) | -0.13 | -0.58 | 0.56 |

Table 35: Regression Examining the Relationship between Attachment Preoccupation, Gender and Location in Predicting PCL:YV Total Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|--------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -2.49 (1.05) | -0.18 | -2.37 | 0.02 |
| Location | -8.19 (1.04) | -0.59 | -7.88 | <0.01 |
| Attachment Preoccupation | 0.41 (0.30) | 0.10 | 1.36 | 0.18 |
| Step 2 | | | | |
| Gender | -4.88 (2.43) | -0.36 | -2.01 | 0.05 |
| Location | -6.80 (2.48) | -0.49 | -2.74 | <0.01 |
| Attachment Preoccupation | -0.08(1.33) | -0.02 | -0.06 | 0.95 |
| Preoccupation X Gender | 0.66 (0.62) | 0.33 | 1.06 | 0.29 |
| Preoccupation X Location | -0.35 (0.64) | -0.16 | -0.54 | 0.59 |

Table 36: Regression Examining the Relationship between Attachment Preoccupation, Gender and Location in Predicting PCL:YV Factor 1 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|--------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.53 (0.34) | -0.15 | -1.54 | 0.13 |
| Location | -0.26 (0.34) | -0.08 | -0.78 | 0.44 |
| Attachment Preoccupation | -0.05 (0.10) | 0.05 | 0.54 | 0.59 |
| Step 2 | | | | |
| Gender | -0.81 (0.81) | -0.23 | -1.00 | 0.32 |
| Location | 0.06 (0.83) | 0.02 | 0.08 | 0.94 |
| Attachment Preoccupation | 0.06 (0.44) | 0.06 | 0.14 | 0.89 |
| Preoccupation X Gender | 0.08 (0.21) | 0.15 | 0.37 | 0.71 |
| Preoccupation X Location | -0.09 (0.21) | -0.15 | -0.41 | 0.68 |

Table 37: Regression Examining the Relationship between Attachment Preoccupation, Gender and Location in Predicting PCL:YV Factor 2 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|--------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.72 (0.34) | -0.19 | -2.10 | 0.04 |
| Location | -1.17 (0.34) | -0.32 | -3.46 | <0.01 |
| Attachment Preoccupation | 0.08 (0.10) | 0.08 | 0.83 | 0.41 |
| Step 2 | | | | |
| Gender | -1.37 (0.80) | -0.37 | -1.71 | 0.09 |
| Location | -1.25 (0.82) | -0.34 | -1.51 | 0.13 |
| Attachment Preoccupation | -0.23 (0.44) | -0.21 | -0.52 | 0.60 |
| Preoccupation X Gender | 0.19 (0.20) | 0.34 | 0.91 | 0.37 |
| Preoccupation X Location | 0.03 (0.21) | 0.06 | 0.16 | 0.88 |

Table 38: Regression Examining the Relationship between Attachment Preoccupation, Gender and Location in Predicting PCL:YV Factor 3 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|--------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -0.26 (0.34) | -0.07 | -0.77 | 0.44 |
| Location | -1.61 (0.34) | -0.42 | -4.77 | <0.01 |
| Attachment Preoccupation | -0.03 (0.10) | -0.03 | -0.30 | 0.77 |
| Step 2 | | | | |
| Gender | -0.79 (0.81) | -0.21 | -0.98 | 0.33 |
| Location | -1.32 (0.83) | -0.34 | -1.59 | 0.11 |
| Attachment Preoccupation | -0.14 (0.44) | -0.13 | -0.32 | 0.75 |
| Preoccupation X Gender | 0.14 (0.20) | 0.26 | 0.71 | 0.48 |
| Preoccupation X Location | -0.07 (0.21) | -0.12 | -0.35 | 0.73 |

Table 39: Regression Examining the Relationship between Attachment Preoccupation, Gender and Location in Predicting PCL:YV Factor 4 Scores

| | B (S.E.) | β | <i>t</i> | <i>p</i> |
|--------------------------|--------------|---------|----------|----------|
| Step 1 | | | | |
| Gender | -1.08 (0.35) | -0.19 | -3.09 | <0.01 |
| Location | -4.45 (0.34) | -0.77 | -12.92 | <0.01 |
| Attachment Preoccupation | 0.18 (0.10) | 0.11 | 1.78 | 0.08 |
| Step 2 | | | | |
| Gender | -1.22 (0.81) | -0.21 | -1.50 | 0.14 |
| Location | -3.35 (0.83) | -0.58 | -4.03 | <0.01 |
| Attachment Preoccupation | 0.55 (0.44) | 0.33 | 1.25 | 0.22 |
| Preoccupation X Gender | 0.03 (0.21) | 0.03 | 0.13 | 0.90 |
| Preoccupation X Location | -0.31 (0.21) | -0.33 | -1.44 | 0.15 |

Table 40: Bivariate and Partial Correlations (Controlling for Location) between Attachment Dimensions and PCL:YV Scores for Boys.

| | PCL:YV Total Score | PCL:YV Factor 1 | PCL:YV Factor 2 | PC:YV Factor 3 | PCL:YV Factor 4 |
|---------------------------|-----------------------|--------------------|--------------------|-------------------|--------------------|
| Attachment Anxiety | -0.08/-0.22 | -0.12/-0.13 | 0.02/-0.01 | -0.06/-0.15 | -0.02/-0.26* |
| Attachment Avoidance | 0.08/0.01 | -0.05/-0.05 | 0.20/0.18 | 0.14/0.10 | 0.02/-0.12 |
| Attachment Security | 0.05/-0.07 | 0.03/0.03 | -0.20/-0.24 | -0.04/-0.13 | 0.15/0.03 |
| Attachment Dismissiveness | 0.09/0.29* | 0.10/0.10 | 0.12/0.17 | 0.04/0.17 | 0.01/0.34** |
| Attachment Fearfulness | 0.02/-0.26* | -0.16/-0.17 | 0.12/0.05 | 0.06/-0.12 | 0.07/-0.39** |
| Attachment Preoccupation | -0.07/0.03 | 0.01/0.00 | -0.06/-0.03 | -0.15/-0.09 | -0.04/0.15 |

Note. Bivariate correlations are presented first, followed by partial correlations controlling for location (in the format bivariate/partial). * $p < .05$, ** $p < .01$.

Table 41: Bivariate and Partial Correlations (Controlling for Location) between Attachment Dimensions and PCL:YV Scores for Girls.

| | PCL:YV Total Score | PCL:YV Factor 1 | PCL:YV Factor 2 | PC:YV Factor 3 | PCL:YV Factor 4 |
|---------------------------|-----------------------|--------------------|--------------------|-------------------|--------------------|
| Attachment Anxiety | 0.21/0.20 | 0.06/0.05 | 0.26/0.26 | -0.03/-0.05 | 0.22/0.29* |
| Attachment Avoidance | -0.24/-0.17 | -0.11/-0.09 | -0.07/-0.01 | -0.07/-0.01 | -0.17/-0.10 |
| Attachment Security | -0.04/0.04 | -0.06/-0.05 | -0.23/-0.23 | -0.06/-0.05 | -0.02/-0.00 |
| Attachment Dismissiveness | -0.18/-0.12 | -0.05/-0.03 | -0.13/-0.10 | 0.08/0.13 | -0.21/-0.21 |
| Attachment Fearfulness | -0.08/-0.02 | -0.08/-0.06 | 0.03/0.09 | -0.12/-0.07 | 0.00/0.13 |
| Attachment Preoccupation | 0.27/0.24 | 0.12/0.10 | 0.17/0.14 | 0.09/0.06 | 0.19/0.18 |

Note. Bivariate correlations are presented first, followed by partial correlations controlling for location (in the format bivariate/partial). * $p < .05$, ** $p < .01$.

Appendix B: Figures

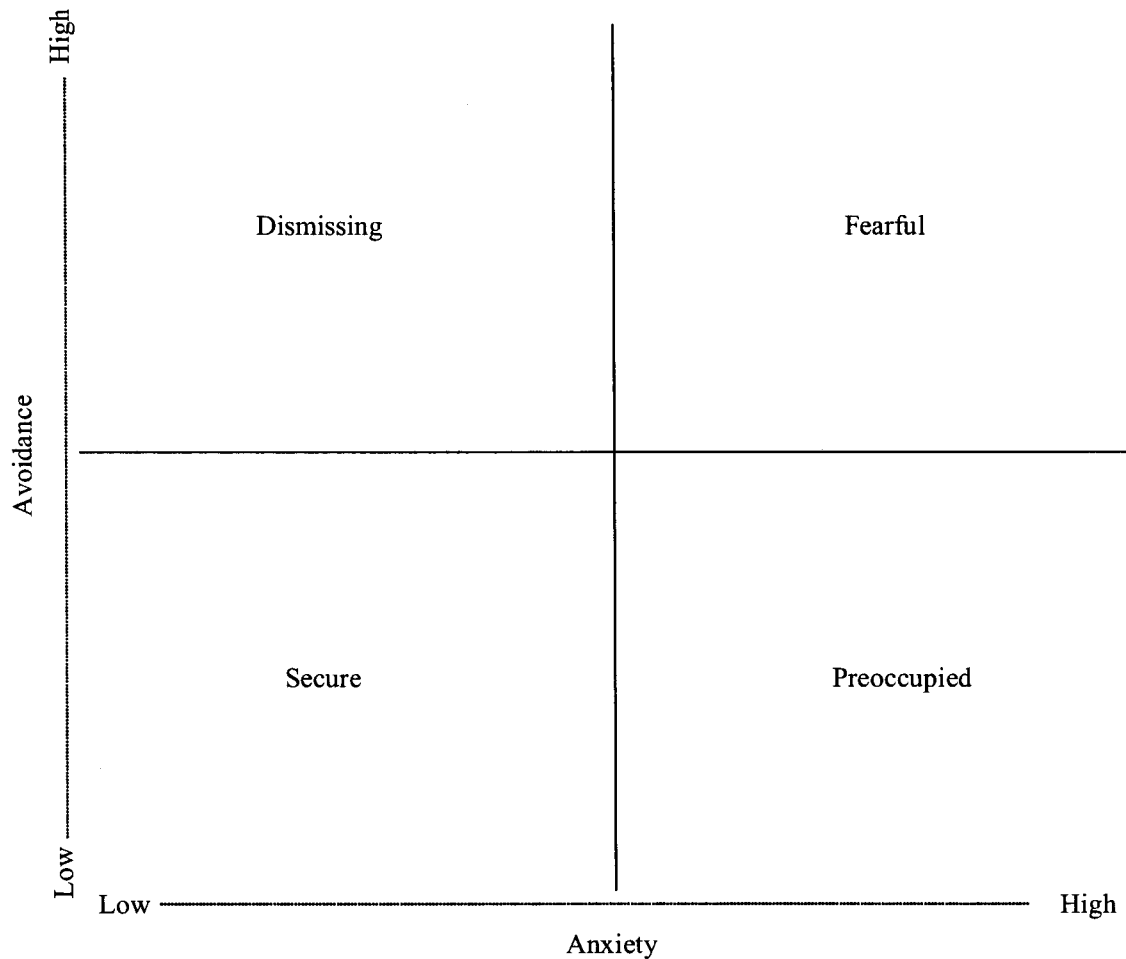


Figure 1: Four-category model of attachment.

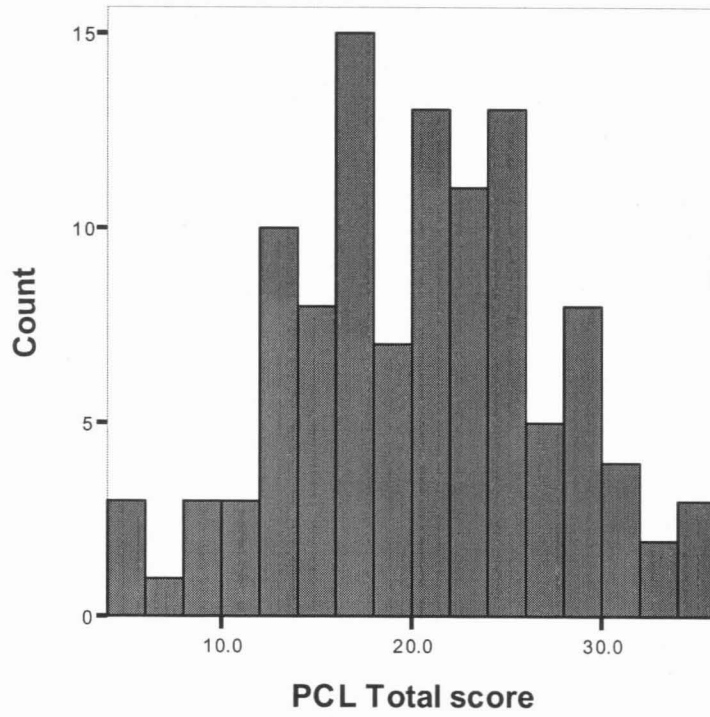


Figure 2: Distribution of PCL:YV Total Scores.

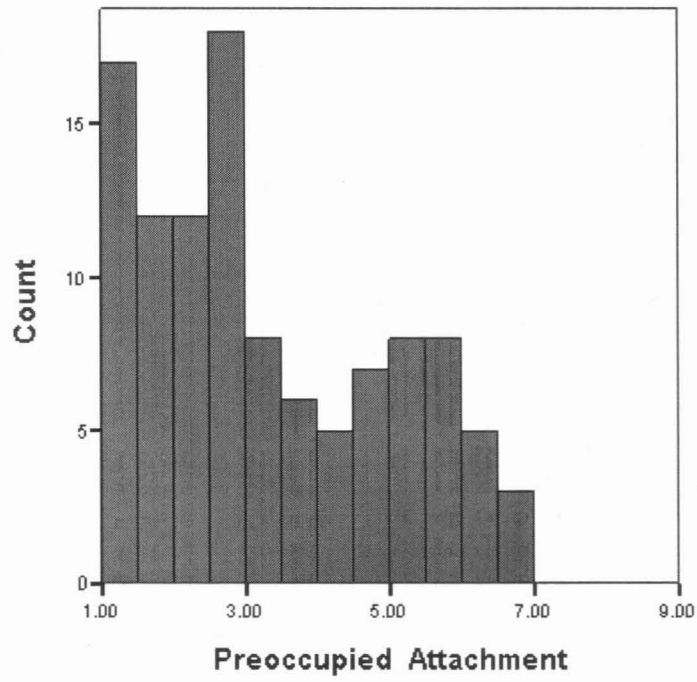


Figure 3: Distribution of Preoccupied Attachment Scores

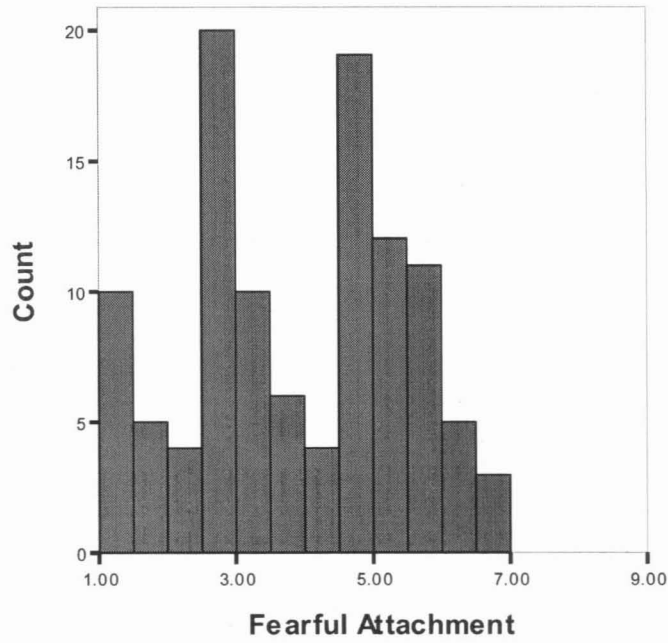


Figure 4: Distribution of Fearful Attachment Scores

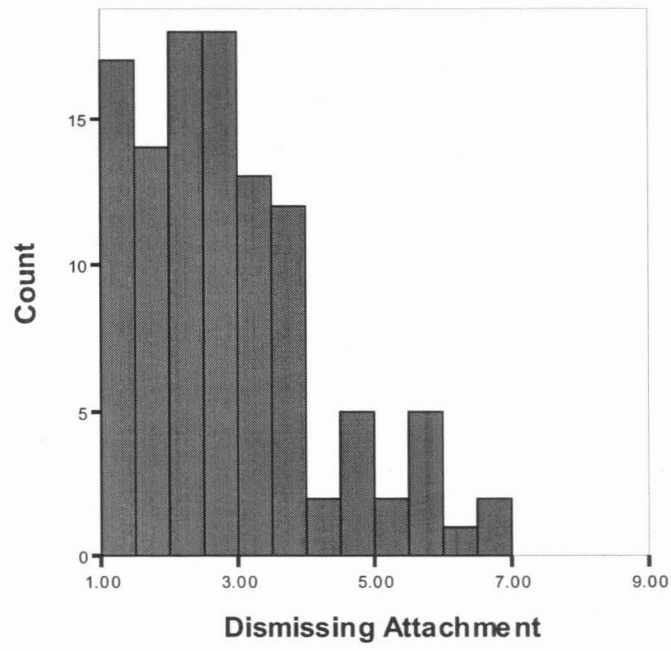


Figure 5: Distribution of Dismissing Attachment Scores

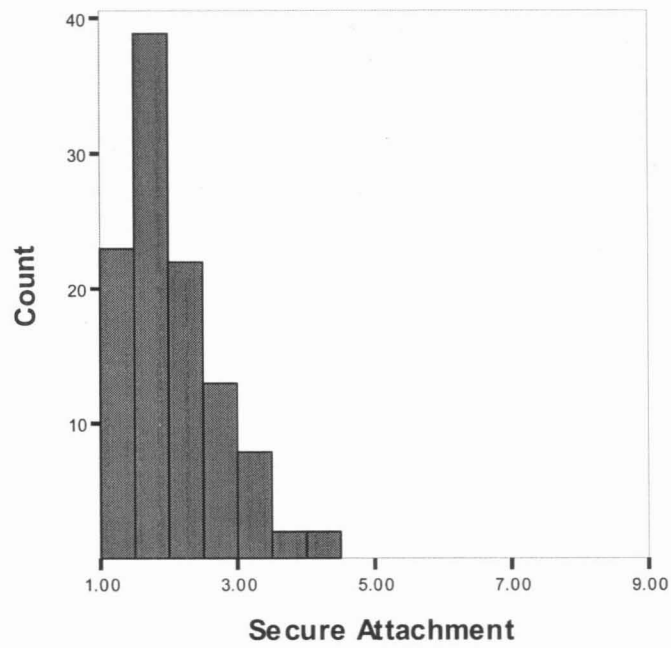


Figure 6: Distribution of Secure Attachment Scores

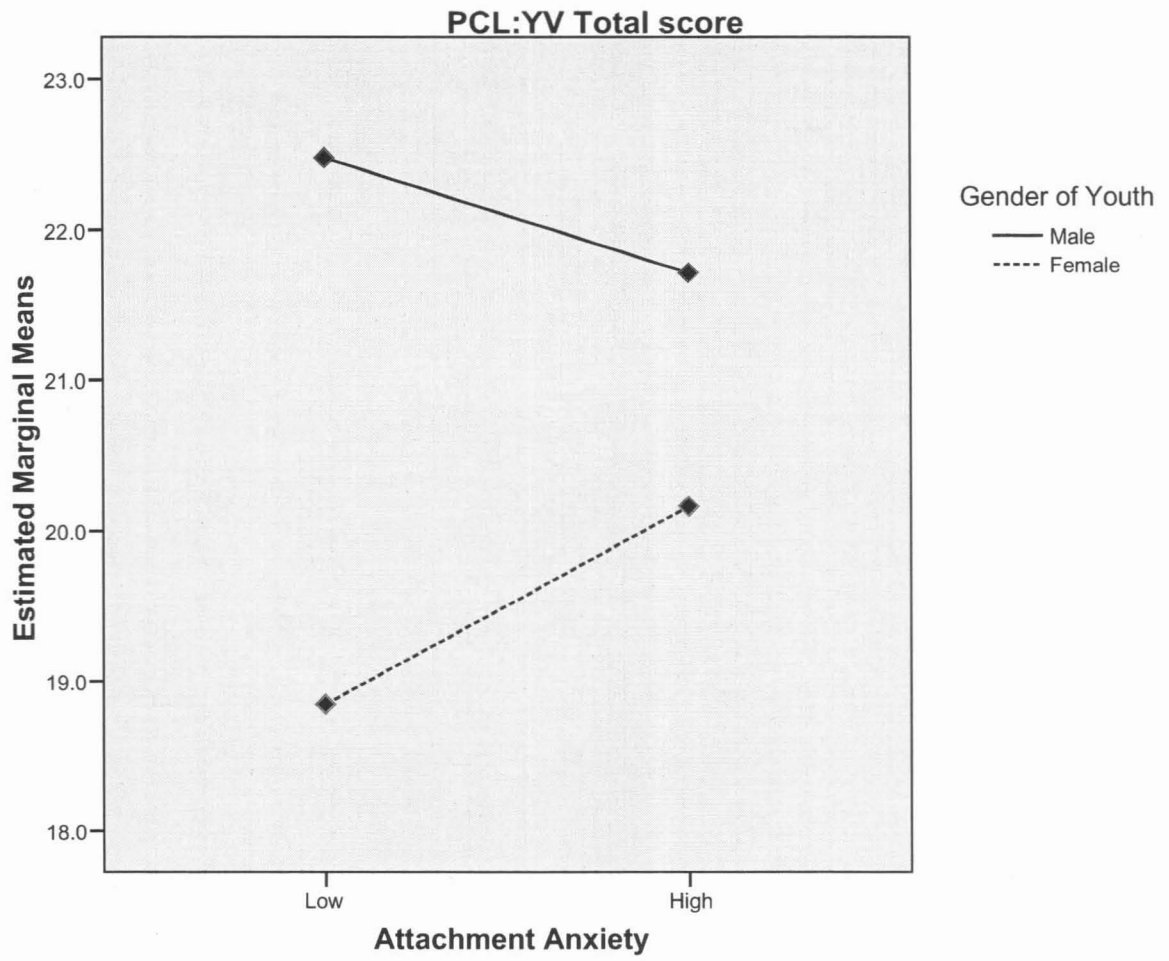


Figure 7: Gender by Attachment Anxiety Interaction for PCL:YV Total Scores.

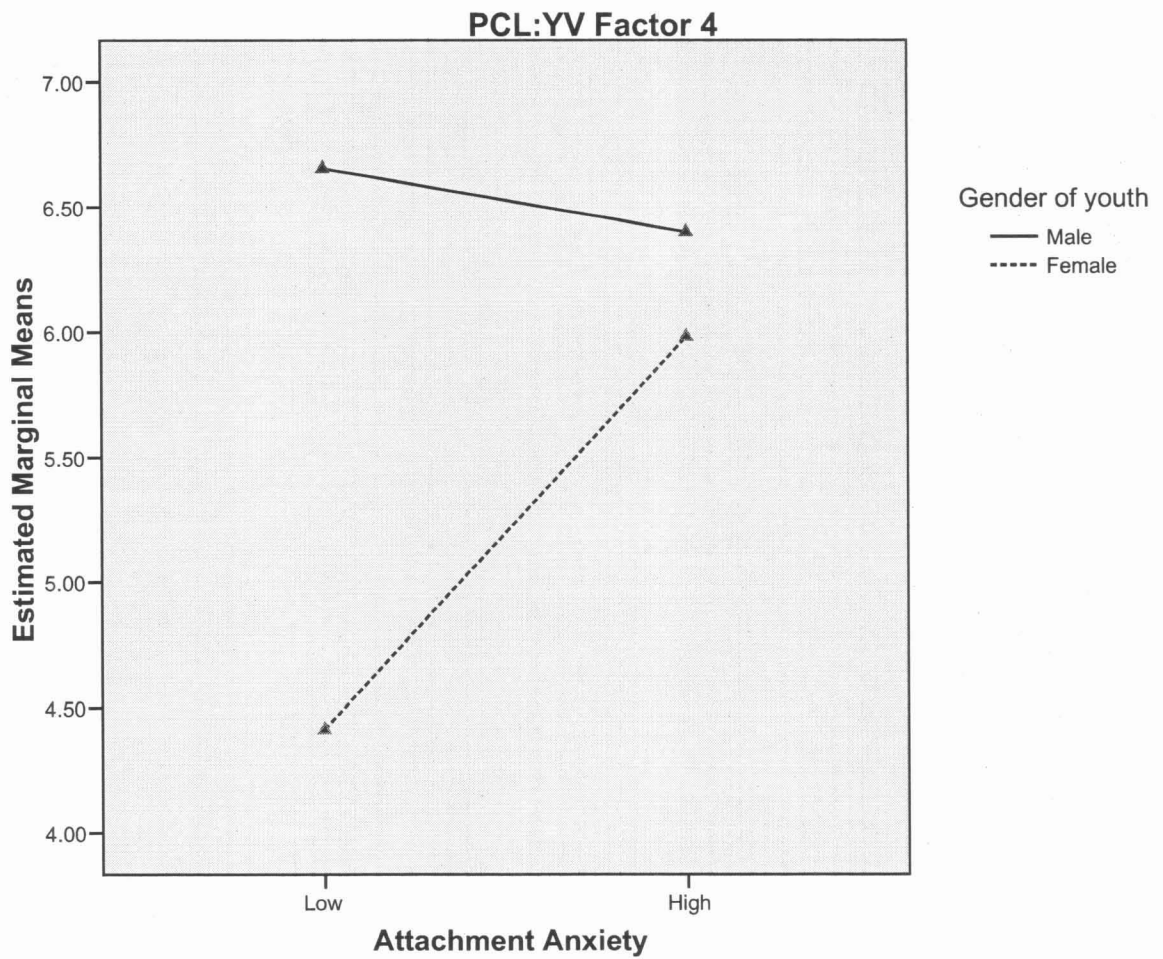


Figure 8: Gender by Attachment Anxiety Interaction for PCL:YV Factor 4 Scores.

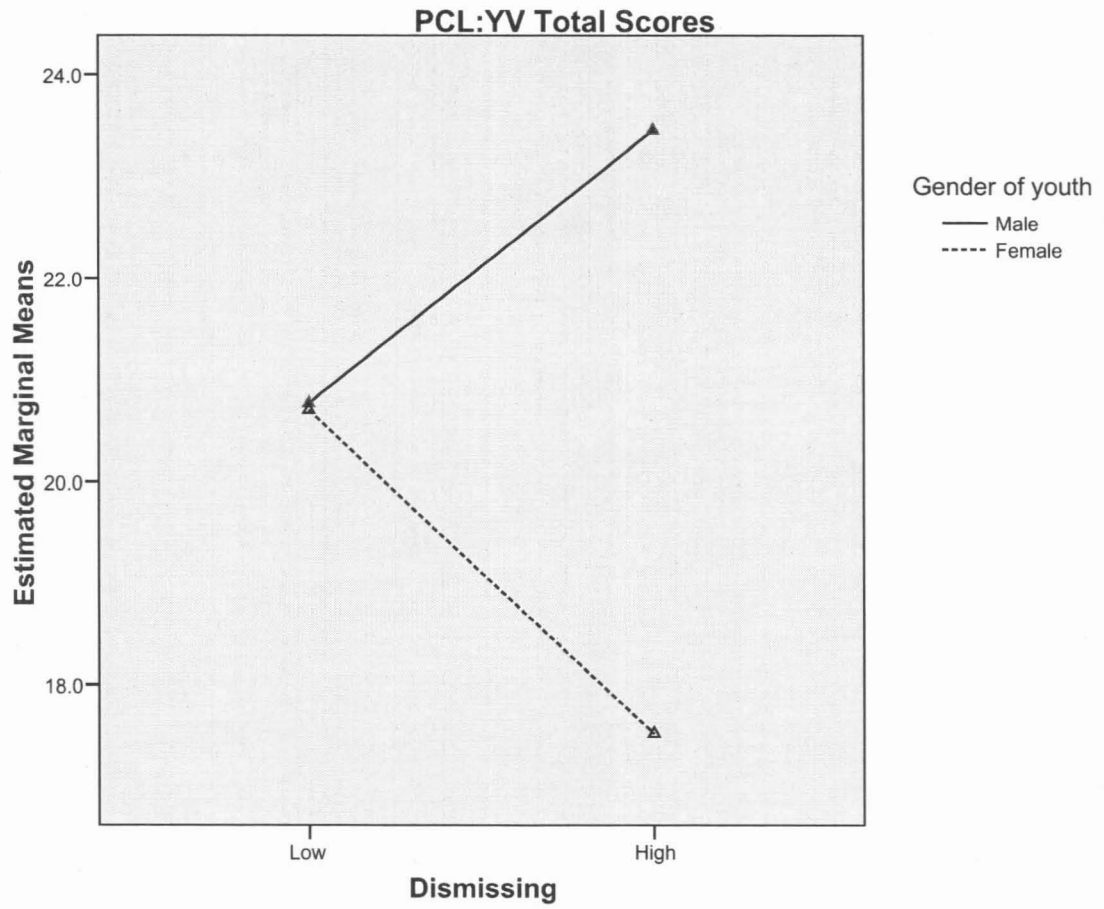


Figure 9: Gender by Dismissing Interaction for PCL:YV Total Scores.

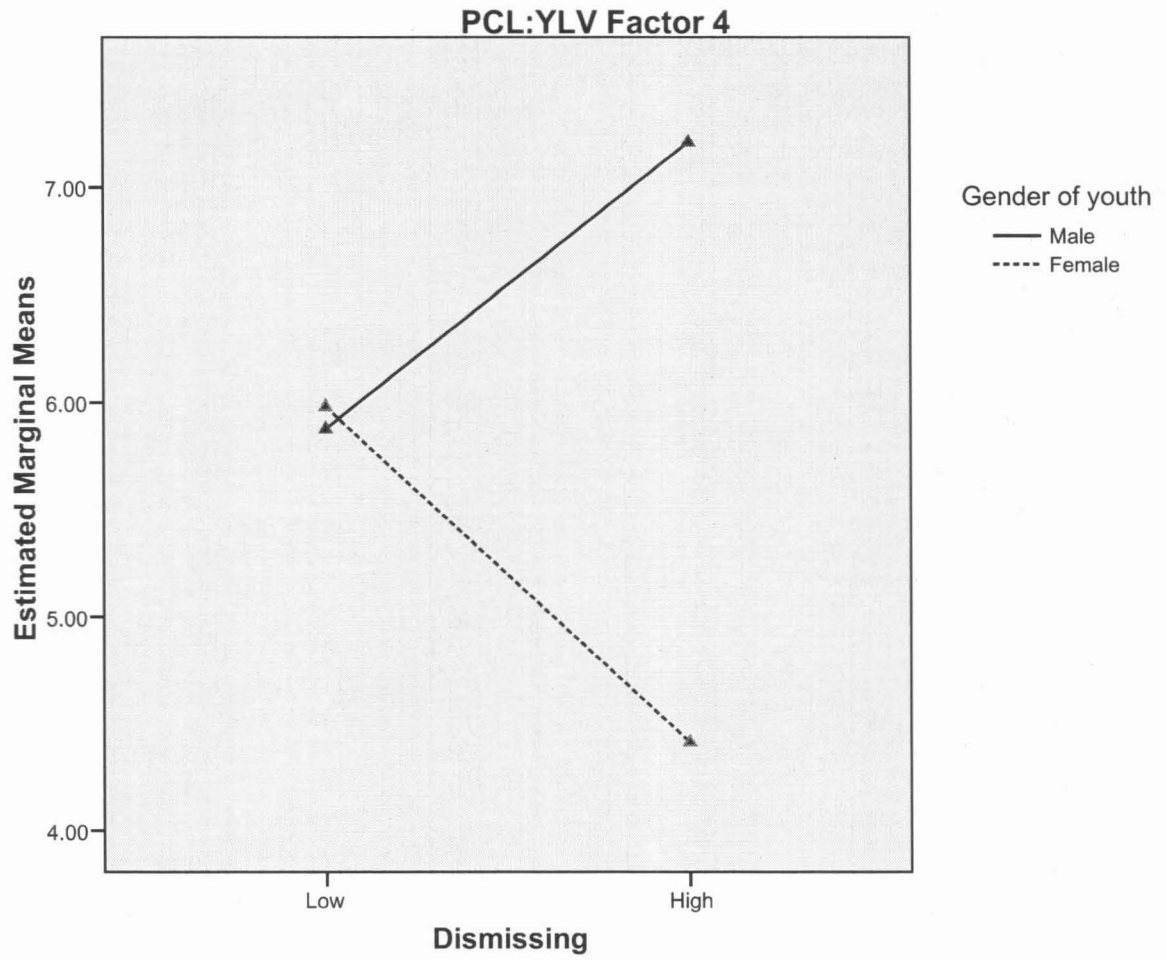


Figure 10: Gender by Dismissing Interaction for PCL:YV Factor 4 Scores.

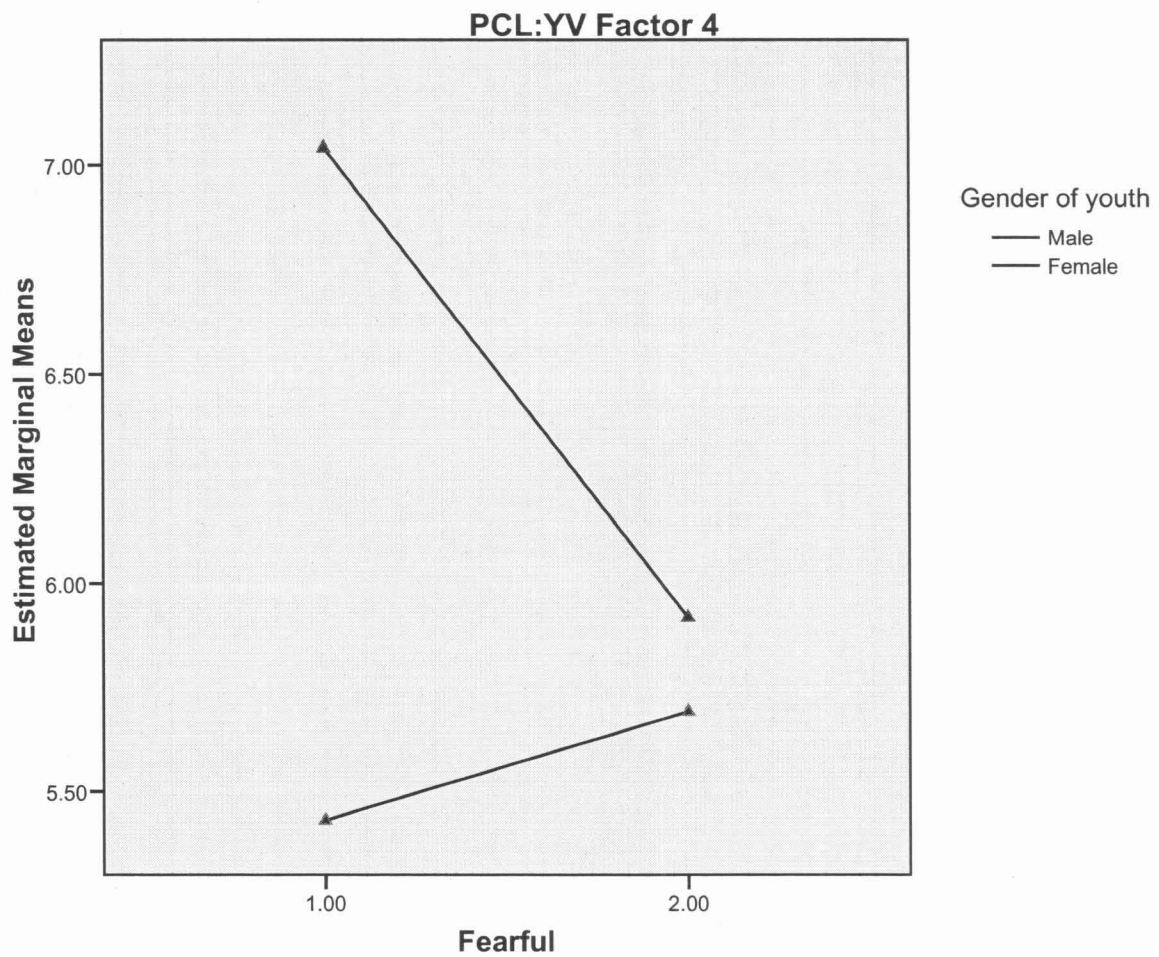


Figure 11: Gender by Fearful Interaction for PCL:YV Factor 4 Scores.

Appendix C: Consent Forms

SIMON FRASER UNIVERSITY INFORMED CONSENT TO PARTICIPATE IN A RESEARCH PROJECT Maples Adolescent Treatment Centre

We are conducting a research study through Simon Fraser University looking at things that affect the lives of teens, the problems they face, and how they develop over time. We do not believe that you will face any risks by participating in our study. Some of the questions in this study are personal, however, and they may or may not make you feel upset. If you do become really upset, we will make sure that there is someone for you to talk to about this and who will help you.

What Participating in this Project involves:

1. Your participation in this study will involve completing questionnaires and interviews in three separate 1 to 2 hour sessions. You have the option of completing these questionnaires and interviews after you finish your regular psychology and education testing.
2. If you decide to participate, information from the interviews and questionnaires completed by you and your caregiver for the Care Plan, and information contained in your file at this facility may be used in the study.
3. Some information from your participation in the study may be shared with staff for the purposes of your Care Plan if it is viewed as in your best interests. However, after your Care Plan is completed, all information used for research will have your name removed, and it will not be used in any way that could lead to you being personally identified. Information will only be used by trained researchers and trainees.
4. Agreeing to participate in the project gives us permission to look in government databases that contain information on your medical, educational and forensic history, and services that have been provided to you. It also involves giving us permission to look at this information as you get older so we can see what services you receive and whether they are helpful.
5. We may also contact you over the next five years to collect similar information, and at that time, you can decide whether or not you wish to participate further.
6. You will receive a gift certificate in the amount of \$30.00 once you have completed your participation in this study.

Your Participation is Voluntary:

We want you to know that you can choose not to answer any questions and you can choose to stop participating at any time. **Deciding to be, or not to be, a participant in this study is completely up to you and does not affect your Care Plan.**

How Confidential is the Information You Provide:

Your name and any other identifying information will be removed from all interview forms and/or questionnaires after your Care Plan is completed. For the purposes of this study, we need to tape-record the interviews. The tapes will be kept in a secure place, and will only be listened to by research assistants on the project who have signed a confidentiality agreement.

Information you share with us will be kept confidential by the researchers to the extent of the law. There are two things that we can't keep secret and will have to notify authorities: 1) if you say that you plan to cause serious physical harm to yourself or anyone else, and/or 2) if you say that you are being abused or are at risk of being abused. The Court may require us to reveal other information that you share.

If you want to know the results of this study when it's done, you can write to:

Dr. Marlene Moretti, Psychology Department,
Simon Fraser University, Burnaby, BC, V5A 1S6
(604) 291-3604

If you wish to file a concern regarding the study, you can write to the person named above, or to Dr. D. Weeks, Chair of the Psychology Department at Simon Fraser University, (604) 291-3354.

I agree to participate by completing interviews and questionnaires and I agree to be contacted to further participate over the next five years. Also, I know my caregiver may complete some similar questionnaires and interviews. Information from the interviews, questionnaires, files from this institution and files from my medical and school records may be used in the study. I understand that the information may be shared with other researchers, but my name and other identifying information will not be included and my identity will be protected. All information will be kept confidential to the extent permitted by law.

Name

(please print):

Witness:

Signature:

Date:

SIMON FRASER UNIVERSITY

INFORMED CONSENT TO PARTICIPATE IN A RESEARCH PROJECT
Youth Forensic Settings

We are conducting a research study through Simon Fraser University looking at things that affect the lives of teens, the problems they face, and how they develop over time. We do not believe that you will face any risks by participating in our study. Some of the questions in this study are personal, however, and they may or may not make you feel upset. If you do become really upset, we will make sure that there is someone for you to talk to about this and who will help you.

What Participating in this Project involves:

1. Your participation in this study will involve completing questionnaires and interviews in three separate 1 to 2 hour sessions.
2. If you decide to participate, information from the interviews and questionnaires completed by you, and information contained in your file at this facility may be used in the study.
3. Agreeing to participate in the project gives us permission to look in government databases that contain information on your medical, educational and forensic history, and services that have been provided to you. It also involves giving us permission to look at this information as you get older so we can see what services you receive and whether they are helpful.
4. We may also contact you over the next five years to collect similar information, and at that time, you can decide whether or not you wish to participate further.
5. You will receive _____ once you have completed your participation in this study.

Your Participation is Voluntary:

We want you to know that you can choose not to answer any questions and you can choose to stop participating at any time. **Deciding to be, or not to be, a participant in this study is completely up to you and will not affect any services that you receive.**

How Confidential is the Information You Provide:

Your name and any other identifying information will not be recorded on interview forms or on the questionnaires that you complete. For the purposes of this study, we need to tape-record the interviews. The tapes will be kept in a secure place, and will only be listened to by research assistants on the project who have signed a confidentiality agreement.

Information you share with us will be kept confidential by the researchers to the extent of the law. There are two things that we can't keep secret and will have to notify authorities: 1) if you say that you plan to cause serious physical harm to yourself or anyone else, and/or 2) if you say that you are being abused or are at risk of being abused. The Court may require us to reveal other information that you share.

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Name

(please print):

Witness:

Signature:

Date:

Appendix D: Family Attachment Group Prototypes

Secure

- defining characteristics: coherence, ability to evaluate, realistic appraisal of past, insightful, value attachment relationships (not necessarily with parents)
- general tone: self-confident, thoughtful, mature, capable of feeling
- common parenting dimensions: supportive parents, low idealization and role reversal, high coherence, good memory, and elaboration
- often have warm, accepting parents that have provided a sense of inner security (and believable) or difficult experiences but "worked through", intellectually and emotionally

Fearful

- defining characteristics: desire for closeness and acceptance, but avoidance due to fear of rejection; shy; low proximity seeking; feels fundamentally unloved; blamed self for parental rejection; difficulty trusting people
- general tone: shy, vulnerable, low self-esteem, continued emotional involvement with parents
- common parenting dimensions: parental rejection, overly critical or harsh or so unavailable that it appeared uncaring; not necessarily any idealization or role reversal; good memory and elaboration (unless shyness overrules)
- common experiences: rejected for attachment behaviors (i.e., crying); abusive or extremely cold parents; very shy or withdrawn as child; withdraws when upset; high separation anxiety

Preoccupied

- defining characteristics: emotional enmeshment with parents, continued dependence, lack of coherence or resolution of separation; high proximity seeking
- general tone: very emotional, either positive (with idealization) or conflicted; lack of independent identity; low self-esteem; overly sensitive to others' opinions
- common parenting dimensions: high idealization & role reversal, low coherence, good memory & elaboration
- common experiences: over-protective enmeshed parents; inept parents; very inconsistent parenting; high separation anxiety; divorce or complicated family history
- may be: a) passive & enmeshed, typically with idealized memories or b) conflicted and ambivalent - with ongoing struggle for independence, anger toward parents, maybe pseudo-analytic, egocentric

Dismissing

- defining characteristics: emotional detachment & defensiveness in discussing attachment relations; downplays importance of attachment relations; over-emphasis on independence, emotional control and/or achievement; lack of evaluation of early experiences; limited awareness of effects from parents; limited memory of specific attachment-relevant childhood experiences; low proximity seeking
- general tone: cool, self-confident, overly rational, unemotional, at extreme arrogant
- common parenting dimensions: high idealization, poor memory and elaboration, low coherence
- often: a) rejecting parents, but subject downplays importance of rejection or even defends parents; detachment from or inability to evaluate effects of early experiences
b) cool unemotional parents that passed on their style; may have emphasized independence and achievement; lack of any physical or expressed affection from parents although no evidence of overt rejection
- common experiences: low separation anxiety; rarely upset, or if so dealt with on own; use of distancers in speech, such as "you" for "I"

(K. Bartholomew, personal communication, September 16, 2003)