

THE CONCURRENT VALIDITY OF THE HARE PSYCHOPATHY CHECKLIST,  
YOUTH VERSION IN HIGH-RISK ADOLESCENT FEMALES

by

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### **Abstract**

The present study seeks to expand our understanding of psychopathy in female youth by examining how the relationship between psychopathic traits and aggressive and antisocial behavior may be moderated by gender. The Hare Psychopathy Checklist, Youth Version (PCL:YV) was administered to a clinical sample of 129 adolescent males and females. Regression analyses were run to assess main and interaction effects of gender and psychopathy on aggressive and antisocial behaviors. Scores on the PCL:YV were associated in expected ways with aggression and criminality, and these relationships were largely equivalent across gender. Deficits in affect emerged as a particularly important factor in aggressive conduct among this sample of adolescents. The current study offers preliminary evidence for the concurrent validity of the PCL:YV in female youth, and suggests that this measure may operate comparably in adolescent males and females. Results are discussed in the context of the characteristics of at-risk aggressive youth.

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## **The Concurrent Validity of the Hare Psychopathy Checklist, Youth Version in High-Risk Adolescent Females**

### **Aggressive and Violent Behavior in Girls: An Important and Understudied Phenomenon**

Over the past decade, adolescent girls have become a prime focus of violence-related research and programming due to significant increases in rates of official violent offending (Puzzanchera, Stahl, Finnegan, Tierney, & Snyder, 2003; Statistics Canada, 2001) and entry into juvenile detention facilities (Porter, 2000). For instance, from 1983 to 1992 arrests of female adolescents rose over 25% in the U.S., and female arrests for violent offenses more than doubled during these years as well (Girls Incorporated, 1996; Hoyt & Scherer, 1998). The most substantial increases in violent crime for girls have been in charges for simple assault, including assault with a weapon and assault causing bodily harm. In Canada, the rate of violent offending among girls has continued to increase over the past five years while the corresponding rate for boys has been dropping since the mid-1990s (Statistics Canada, 2001). Similarly, based on data from self-report measures, it appears that the gap between girls and boys' rate of engagement in violent behaviors is rapidly closing (U.S. Department of Health and Human Services, 2001).

Although it is well-documented that boys continue to outnumber girls as the perpetrators of severe acts of aggression and violence (Chesney-Lind & Sheldon, 1998; Elliott & Ageton, 1980; Savioe, 2000), the absolute number of antisocial girls is increasing, along with the associated costs to society which result from the behaviors of these girls (Silverthorn & Frick, 1999). Unfortunately, empirical research has not kept pace with the increases in criminal and aggressive behavior among girls; consequently, very little is known about violent or antisocial conduct among girls, and even less so about the factors that may work to cause and maintain such behaviors.

There are several reasons why a specialized focus is required for girls in the study of violence and aggression. First, although it is likely that certain risk factors are pertinent in explaining delinquency and aggression across gender, many theorists argue that there are unique risk factors associated with female aggression as well as differences in the strength of these predictors. Only recently, however, have researchers begun to identify distinct factors involved in female aggression (Chesney-Lind & Sheldon, 1998; Funk, 1999; Giordano & Cernkovich, 1997). For instance, abuse and victimization in the home have been suggested as playing especially important roles in female delinquency (Chesney-Lind, 1989, 1997). Additionally, social bonds to others are postulated to be of greater importance for females (Gilligan & Wiggins, 1988; Moretti, 2001), causing disruptions in key relationships to have a more negative impact on females than males. This idea is exemplified in recent research on attachment styles in high-risk youth suggesting that, in contrast to adolescent boys, aggression among young females may be tied to these girls' desperate attempts to maintain relationships (Moretti, DaSilva, & Holland, 2004). Furthermore, the emphasis that females place on sustaining relationships introduces a greater risk for criminality when the others in those relationships engage in illegal and delinquent behaviors (Artz, 1998; Funk, 1999).

In addition to gender-specific risk factors, developmental trajectories to aggressive behavior are most likely gender specific, making it improbable that a general trajectory or developmental model applies equally to both sexes (Loeber & Stouthamer-Loeber, 1998; Silverthorn & Frick, 1999). For example, although Moffitt (1993) argued that the classic distinction between early-onset, Life Course Persistent (LCP) and Adolescent Limited (AL) offenders is equally applicable to males and females, some

have doubted whether the early-onset category applies to females. Instead, it has been suggested that a “delayed onset” pattern in girls is equivalent to the early-onset pattern shown in boys, since these girls often show comparable severity to early onset boys in terms of negative prognosis and stability of course (Silverthorn & Frick, 1999).

The differences that are posited to exist in the developmental course of aggression in females are especially relevant for those DSM-IV disorders that rely on early-onset aggressive behaviors to make a diagnosis. The continuity that is seen between childhood and adult aggression in males has never been firmly established for females (Silverthorn & Frick, 1999). In light of this issue, some researchers have argued that the formal criteria used to diagnose disorders involving antisocial behavior in the DSM-IV (e.g., Conduct Disorder, Oppositional Defiant Disorder, and Antisocial Personality Disorder; American Psychiatric Association, 1994) are insensitive to detecting early onset signs of emerging behavioral disorders in girls. Zoccolillo (1993) argued, for example, that the current criteria for diagnosing Conduct Disorder (CD) are biased against finding girls with the disorder because of the emphasis that is placed on early physical aggression. Similarly, Rutherford and colleagues (1995) point out that few adult females will endorse the childhood criteria required for a diagnosis of Antisocial Personality Disorder (APD), thus making them unlikely to be diagnosed with the disorder even if they meet all other adult criteria.

How different are boys and girls in the expression of aggression? In addition to the risk factors and developmental trajectories to aggressive and antisocial behavior, experts have found consistent and substantial gender differences in the manifestation of aggression (e.g., Crick, 1995; Eme & Kavanaugh, 1995). In particular, the few studies

that have looked closely at aggressive behaviors in girls suggest that there are differences both in the form and function of this behavior (Little, Jones, Henrich, & Hawley, 2003). Some studies have shown that, compared to boys, girls engage in fewer acts of physical aggression and more acts of relational, interpersonal, and social forms of aggression (e.g., acts that are intended to damage others' friendships or feelings of acceptance in a peer group; Bjorkvist, Lagerspertz, & Kaukiainen, 1992; Crick, 1995). However, more recent studies suggest that girls and boys engage in comparable amounts of social and relational aggression, although boys consistently show higher levels of physical aggression than girls (Crick, 1997; Underwood, 2003). Because males tend to value instrumentality and physical dominance, some have suggested that their physical aggression can be seen as a means of maintaining and strengthening these goals (Crick & Grotpeter, 1995). In contrast, as girls are encouraged to regulate themselves in relation to others, their aggression may be more closely tied to how they position themselves relative to others in close relationships (Moretti, 2001). It is important to consider, however, that relational aggression may serve to create the interpersonal context in which acts of physical aggression are later committed by girls (Odgers & Moretti, 2002).

In sum, we are only beginning to understand the expression and goals of aggression and violence in girls. While many factors that give rise to, and maintain, aggression and violence appear similar for girls and boys, some differences have emerged. It is clear that further research is required to better understand the risk factors, developmental trajectories, and manifestations of aggression and violence as they relate to gender.

## Gender, Psychopathy, and Risk for Violence

Psychopathy is a personality construct that is intimately related to aggressive and violent behavior; it refers to a constellation of affective, interpersonal, and behavioral characteristics that include a callous disregard for others, a lack of empathy, and a propensity to highly impulsive and irresponsible behavior (Hare, 1991, 2003). Despite the construct's utility as an indicator of risk for future violence, few studies have explicitly examined gender differences in the expression and relation of psychopathy to aggression, violence, or non-violent criminal behavior. More recent studies suggest that the construct of "psychopathy" may change as a function of age and gender, and that a modified conceptualization of the construct is needed in non-adult and non-male populations (e.g., in adolescent males, Edens, Skeem, Cruise, & Cauffman, 2001; Vincent, 2002; in adolescent females; Salekin, Rogers, & Machin, 2001; in adult women, Jackson, Rogers, Neumann, & Lambert, 2002; Salekin, Rogers, Ustad, & Sewell, 1998).

For female psychopathy in particular, empirical research is beginning to highlight the inadequacies of current psychopathy measures that assume cross-gender invariance of the construct. With the most salient examples being the Hare Psychopathy Checklist, Revised (PCL-R; Hare, 1991, 2003), and its recently developed youth version (PCL:YV; Forth, Kosson, & Hare, 2003), it is suggested that such measures may not be sufficiently sensitive in capturing or capitalizing on those traits that are associated with female psychopathy, and which may serve to uniquely predispose females to aggressive and violent behavior (Odgers, Moretti, & Repucci, 2005; Verona & Vitale, in press). Specifically, the PCL instruments assume a "gender neutral" view of psychopathy; that is, the major factors underpinning psychopathy (i.e., the interpersonal, affective, and

behavioral features of psychopathy) are assumed to manifest similarly and contribute equally to the overall syndrome in both males and females. However, this is an empirical question that has yet to be convincingly addressed in the literature. Indeed, evidence to the contrary has been reported by Salekin and colleagues (1997, 1998), who found that psychopathy in adolescent and adult females is expressed primarily through affective and interpersonal dimensions more so than through overt antisocial behaviors. These investigators suggested that personality characteristics such as callousness, unemotionality, and a lack of empathy are more relevant for assessing female psychopathy than are the behavioral criteria, and that consequently, the equal weighting of interpersonal, affective, and behavioral-based items in the PCL instruments may artificially lower prevalence rates of psychopathy found in female samples. Other investigators (e.g., Vitale, Smith, Brinkley, & Newman, 2002; Warren et al., 2003) have similarly suggested that, while the PCL-R in women may evidence a comparable factor structure to the one seen in all-male samples (i.e., Hare's classic two-factor model; 1991, 2003), the low base-rate of psychopathy typically observed among samples of women may be due to the PCL-R's insensitivity in capturing those dimensions of the construct that are salient for female psychopathy. Further supporting this argument, Jackson and colleagues (2002) found that deficits in affect (e.g., shallow emotions, a callous disregard for others) were highly distinctive features of female psychopathy specifically.

An important implication of these findings is that a 'one size fits all' measure of psychopathy will be inadequate to assess the construct if the manifestation of psychopathy is gender-specific, and if different facets of the construct hold differential weight in male versus female populations. For example, as Edens and colleagues (2001)

point out, if different dimensions of psychopathy are differentially associated to aggression or criminality across gender, this needs to be elucidated, as it would have significant implications for the assessment of risk for violence. The PCL instruments also fail to consider how gender and developmental factors interact in the emergence of psychopathy and risk for future violence. For instance, based on the finding that early violence is associated with future aggression and violent offending in males, the PCL incorporates early and severe behavioral problems in its measurement of psychopathy. However, as previously noted, the “delayed” developmental course posited for aggression in girls introduces the possibility that early markers of future violence may be less common for females, and may also present themselves at different developmental stages. Therefore, the PCL instruments may fall short when assessing psychopathy and risk for violence in females due to the inclusion of developmentally- and gender- insensitive items.

The literature on early socialization processes and moral development provides a theoretical framework through which gender differences in psychopathy may be understood. Because societal norms and expectations typically serve to inhibit overt antisocial behaviors in women, it is likely that they will experience feelings of guilt, anxiety, and remorse more often than men who perpetrate such behaviors (Bettencourt & Miller, 1996; Frodi, Macaulay, & Thome, 1977). The increased presence of psychopathic personality traits may be a prerequisite for females to break gender-specific norms and engage in aggressive or violent activities with a minimal amount of anxiety or remorse arising from their behaviors (Broidy, Cauffman, Espelage, Mazerolle, & Piquero, 2003; Verona & Vitale, in press). Additionally, as women are less likely than men to exhibit

antisocial behavioral dysregulation (American Psychiatric Association, 1994), personality-based dimensions of psychopathy – such as an egocentric, callous, and manipulative interpersonal style – rather than behavioral features may be more pronounced in females. In light of these hypotheses, it is possible that emphasizing the affective and/or interpersonal dimensions of psychopathy, rather than weighting them equally alongside the behavioral features, would serve to increase the reliability with which psychopathy could be measured in females. This, in turn, could enhance the construct's ability to forecast future violence and criminality. However, it is evident that considerably more research needs to be conducted in the area of female psychopathy – for example, in how facets of the construct relate to relevant outcomes such as aggression and criminal behavior in females – before any changes to the construct could be justified.

### Juvenile Psychopathy

Empirical research has begun to proliferate on the identification of psychopathic traits in adolescents, particularly in light of recent surges in youth violence and serious offending witnessed in both Canada and the United States (Puzzanchera et al., 2003; Statistics Canada, 2001). Correspondingly, the exponential growth of offending by young females has attracted considerable empirical attention, and experts have questioned whether the psychopathy construct can reasonably be extended to this select population. Generally, the value of trying to extend this construct to children and adolescents lies in the fact that psychopathy has been shown to be a robust predictor of persistent and chronic violent offending in adults (e.g., Harris, Rice, & Cormier, 1991; Hemphill, Hare, & Wong, 1998; Salekin, Rogers, & Sewell, 1996). Understandably then, one goal in

juvenile psychopathy research is to isolate those youth that will persist in their offending through the identification of psychopathic traits and behaviors in childhood. Because such a small percentage of chronic offenders are responsible for the majority (50-60%) of major offenses, and because this group is significantly overrepresented by psychopathic individuals, the early identification of psychopathic traits in children is seen as a worthwhile research endeavor with important implications for public safety and protection (Salekin, 2002). Furthermore, a central objective in juvenile psychopathy research is prevention; specifically, the hope is to discover those markers that will enable mental health professionals to identify, what Lynam (1996) has termed, “the fledgling psychopath”, and to intervene before the syndrome becomes crystallized into a severely maladaptive personality and behavioral style. Personality characteristics such as callousness and unemotionality in children bear a close resemblance to the hallmark features of adult psychopathy, and are thought to provide a basis for distinguishing conduct disordered children from “pre-psychopathic” children (Barry et al., 2000; Frick, O’Brien, Wootton, & McBurnett, 1994).

The idea that psychopathic traits and risk markers can be identified in children and adolescents, however, has met with considerable controversy. Although prognosis and treatment effectiveness may be substantially improved by focusing on symptoms in early childhood, the psychological and/or behavioral ramifications of labeling a child as psychopathic may far outweigh the benefits of early intervention. In addition, the potential misuse of the construct in forensic contexts can have serious consequences for young offenders. Such a label may cause decision-makers (e.g., courts, clinicians, caregivers) to think about these youth in very pessimistic terms and consequently deny

them the services they require (Frick, 2002; Vincent & Hart, 2002). Understandably then, authors have warned against the use of the psychopathy construct in youth, pointing out that indicators of psychopathy involve signs and processes that are quite common in normally developing children (Edens et al., 2001; Frick, 2002; Seagrave & Grisso, 2002). Furthermore, and analogous to the problems involved with predicting violence in females, the robust relationship that exists between psychopathy and future violence in adult males has simply not been replicated in youth to the same degree (Edens et al., 2001; Seagrave & Grisso, 2002).

Notwithstanding these concerns, much empirical progress has been made in the past decade in the assessment and identification of psychopathic features in youth. Perhaps the most noteworthy of these achievements has been the modification of the PCL-R to youth, taking into account the limited life experience of adolescents. The Psychopathy Checklist, Youth Version (PCL:YV; Forth et al., 2003) has been shown to have good internal consistency and item homogeneity in samples of adolescent males (alpha range = .75 to .89; Brandt, Kennedy, Patrick, & Curtin, 1997; Forth, Hart, & Hare, 1990), as well as good to excellent levels of interrater reliability (.81 to .98; Hume, Kennedy, Patrick, & Partyka, 1996; Toupin, Mercier, Dery, Cote, & Hodgins, 1996). The items on the PCL:YV are also purported to retain the same two-factor structure as the PCL-R (i.e., with Factor 1 representing the interpersonal and affective features of psychopathy, and Factor 2 encompassing the antisocial behaviors), although several confirmatory factor analyses have indicated that this model provides an inadequate fit to youth data (Kosson, Cyterski, Steuerwald, Neumann, & Walker-Matthews, 2002). In terms of concurrent and predictive validity, the PCL:YV has been shown to correlate with

a number of relevant variables, including aggressive and delinquent behavior (as reported by a primary caregiver), substance abuse, number of postrelease violent offenses, and time to first commission of a violent offense after release (Forth & Burke, 1998; Gretton, Hare, & Catchpole, 2004; Kosson et al., 2002).

It is relevant to note, however, that the vast majority of studies supporting the validity and general utility of the PCL:YV in youth utilize all-male samples; consequently, it remains largely unknown whether the PCL:YV possesses adequate levels of validity and reliability in girls, or whether it retains a comparable factor structure. In fact, a recent paper by Odgers and colleagues (2005) noted that the use of the PCL:YV in girls for risk assessment purposes is particularly unsupported given the lack of sound research assessing the concurrent or predictive relation of psychopathy to aggression among girls, and limited research on psychopathy in women. As discussed in the previous section, research is beginning to challenge the assumption that the PCL-R can assess psychopathy comparably in adult males and females, and is starting to highlight meaningful gender differences in how psychopathy manifests and relates to relevant outcome variables (Jackson et al., 2002; Richards, Casey, & Lucente, 2003; Vitale et al., 2002). In light of this, research findings gathered from adolescent boys cannot be justifiably extended to girls without prior evidence speaking to the comparability of the construct across gender.

Those studies supporting the predictive validity of psychopathic traits in youth (e.g., Gretton et al., 2004; Kosson et al., 2002) are further limited by the fact that none examine the predictive relationships between psychopathy and future violence separately for the different facets purported to underpin the larger construct (i.e., the interpersonal,

affective, and behavioral features of psychopathy). Virtually no prospective studies have tested the predictive utility of psychopathic personality traits that are believed to lie at the “core” of the adult syndrome (Cleckley, 1941; Blackburn, 1998) in child or adolescent samples (see Corrado, Vincent, Hart, & Cohen, 2004 for an exception). Consequently, it is unclear whether there is anything about psychopathy per se, above and beyond the antisocial and criminal behaviors, that predicts future violence and offending in adolescents. More research is needed to determine whether the interpersonal and affective personality traits assessed by the PCL:YV offer any additional value in terms of predicting future aggression and/or criminality, and whether this is the case for both males and females. In the aforementioned study by Corrado and colleagues (2004), utilizing an all-male sample, it was shown that the bulk of predictive power of the PCL:YV stems from the impulsive and stimulation-seeking behavioral traits that are shared with most disruptive behavior disorders in youth. In light of the recent controversies surrounding the appropriateness of assessing psychopathic traits in adolescents, as well as the construct’s potential for diagnostic misuse, it may be the case that psychopathic personality traits offer little incremental value in terms of prediction, and that assessing common behavioral disorders (e.g., conduct disorder, oppositional defiant disorder) more directly forecasts short-term future violence. Again, however, more research is needed to substantiate this claim, particularly in order to generalize it to females.

## The Current Study

Research on aggression, violence, and criminality in young females is currently in its infancy. As such, we are just beginning to uncover the risk factors involved in aggressive and antisocial behavior in young females, as well as the manifestations of these behaviors. Psychopathy has been posited as a robust predictor and risk factor for violence and criminality in males; however, it is largely unknown whether this construct can be extended both downwards and laterally to adolescent females. Virtually no studies to date have explicitly examined the concurrent relationships among psychopathic traits and antisocial behavior in girls. On a larger scale, few studies have considered how specific facets of psychopathy (i.e., interpersonal, affective, and behavioral dimensions) are related to aggression and criminality in adolescents, and how these relationships change as a function of gender. The current study sought to address these issues by examining the effect of gender on the relationship between psychopathy and aggression, including those types of aggression posited to be most relevant for girls (e.g., relational aggression, aggression within close relationships). Additionally, and because males continue to outnumber females in the realm of violent crime, the relationship between psychopathic traits and indices of both violent and non-violent crime was examined across gender. Generally, outcome variables were selected that would pertain to both males and females, and that would move beyond those variables traditionally considered in psychopathy studies utilizing all-male samples.

The present study also introduces a degree of specificity previously lacking in studies of juvenile psychopathy: first, both boys and girls are included in the sample and are explicitly compared; second, specific facets of psychopathy, rather than the construct

as a whole, are examined in their relationship to aggression and criminality; and third, gender-relevant outcome variables are included in order to allow for the possibility that psychopathic traits are only significantly predictive of gender “normative” forms of aggression and antisocial behavior (e.g., relational aggression in females; violent offending in males). It was also hypothesized that the interpersonal and affective features of psychopathy would evidence stronger relationships with measures of aggressive and criminal behaviors in girls as compared to boys. As was discussed above, it may be the case that girls require a higher level of psychopathic personality traits to engage in acts of aggression, violence, or crime without experiencing significant remorse or anxiety. In contrast, and in accordance with the literature in adult males, it was hypothesized that all dimensions of psychopathy would be associated with the outcome variables for boys.

## Method

### *Participants*

Participants were 129 adolescents (67 males, 62 females) between the ages of 12 and 18 drawn from custody centers (63%), provincial assessment centers (35%), and probation offices (2%) around British Columbia’s lower mainland. Attempts were made to enroll every new female admission to the custody and assessment centers who would then be matched with a same aged male youth. Exclusion criteria for this study were comprised of (a) IQ below 70, or (b) any significant Axis I affective or psychotic symptomatology. The final sample consisted of adolescents who were actively involved in the criminal justice system and/or who had been diagnosed as having severe conduct disorder and behavioral problems. Of the 129 participants, information regarding clinical

diagnoses of behavioral and emotional disorders was available for 90 cases. Of this group, 61% met the criteria for conduct disorder (68% of boys and 57% of girls). The mean age of participants in the current sample was 15.56 ( $SD = 1.61$ ), with male participants having a mean age of 15.87 years ( $SD = 1.68$ ) and females having a mean age of 15.23 ( $SD = 1.47$ ). This difference was significant,  $F(1, 127) = 5.29, p < .05$ . Incarcerated youth were also significantly older ( $M = 16.22, SD = 1.43$ ) than were youth in the residential treatment setting ( $M = 14.47, SD = 1.24$ ),  $F(1, 127) = 47.17, p < .001$ . Most youth were Caucasian (60%), with the remainder of Aboriginal (23%), mixed Caucasian and Aboriginal (6%), and Other (11%) ethnicity.

Chi-square likelihood analyses were conducted to assess demographic characteristics of girls and boys (e.g., ethnicity, percentage in custody placements, percentage in mental health residential placements). Findings indicate that there was a significantly higher proportion of Aboriginal females (31%) than males (13%) in the sample,  $\chi^2(1, n = 28) = 6.07, p < .05$ . Additionally, more males were gathered from custody centers ( $n = 49$ ) than from the residential treatment facility ( $n = 18$ ), while approximately equal numbers of females were gathered from both custody and residential settings ( $ns = 30$  and  $28$ , respectively). When gender and location (custody, residential) were analyzed in a 2X2 chi-square table, the statistic was significant,  $\chi^2(1, N = 129) = 7.32, p < .01$ .

### *Instruments*

*The Psychopathy Checklist, Youth Version (PCL:YV; Forth, Kosson, & Hare, 2003)*. The PCL:YV is a 20-item symptom construct rating scale designed to measure the same interpersonal, affective, and behavioral dispositions as does its parent measure, the

PCL-R, in youth. Each item is scored on a 3-point scale, with scores of zero (consistently absent), one (inconsistent), or two (consistently present) for each component reflecting inferences about the stability of a specific tendency or disposition across situations. Items are summed to yield a total score ranging from 0 to 40, with higher scores reflecting the increased presence of psychopathic traits.

As is the case with the PCL-R, judgments on the PCL:YV require the integration of information provided from self-reports, collateral sources, and direct observations of the youth's behavior. The scoring guidelines for the PCL:YV have been modified to reflect the different expressions of psychopathic traits in adolescents of varying ages (Kosson et al., 2002), and require the examiner to compare a youth's behavior to other youth of the same chronological age. Psychometric properties of the PCL:YV are essentially the same as the PCL-R, and include good to excellent levels of interrater reliability, internal consistency, and convergent validity (Brandt et al., 1997; Forth & Burke, 1998; Forth et al., 2003; Kosson et al., 2002). For the current study, the intra-class correlation coefficient for the file only training cases ( $n = 5$ ) was .87 (C.I. = .21-.99). For interview cases ( $n = 28$ ), the  $ICC_2$  for PCL:YV total score was .96 (C.I. = .91-.98). The  $ICC_2$  for Factor 1 = .93 (C.I. = .85-.97), Factor 2 = .90 (C.I. = .78-.95), and Factor 3 = .84 (C.I. = .64 - .92). The alpha coefficient for the entire scale was .87 (males = .87, females = .84). For the individual factors,  $\alpha = .66$  for Factor 1 (males = .71, females = .50), .71 for Factor 2 (males = .65, females = .74), and .66 for Factor 3 (males = .74, females = .50).

#### *Criterion Measures*

*Little's Aggression Inventory (LAI-25; Little, Jones, Heinrich, & Hawley, 2003).*

The LAI contains six subscales designed to differentiate manifest forms of aggression

(overt and relational aggression) among specific quadrants of aggression (i.e., pure overt, overt reactive, overt instrumental, pure relational, relational reactive, relational instrumental). The primary advantage of using the framework developed by Little and colleagues (2003) is that it distinguishes the form of the aggressive behavior (i.e., overt or relational, the “what” of the behavior) from the function (i.e., motivated by reactive or instrumental needs, the “why” of the behavior). Based on the proposed model in Little et al. (2003), as well as further factor analytic work done by Little and colleagues, 25 items were extracted from the original measure and modified to form two overarching composite scores (i.e., “overt” and “relational”), encompassing both “pure” forms of overt and relational aggression, as well as overt and relational aggression that is driven by reactive and instrumental motives (see Table 1). All items are scored on a 4-point scale ranging from “not true at all” to “completely true”. The alpha coefficient for the entire scale was .95 (.93 and .91 for overt and relational aggression, respectively). Little and colleagues (2003) reported acceptable levels of internal validity ( $r_{xx}$  ranging from .62 for pure relational aggression to .84 for overt instrumental aggression), as well as satisfactory external and criterion validity for the scale, which was shown to generalize across age-cohort (ages 11 to 16), gender, and ethnicity.

*Self-Report of Offending, revised (SRO-R)*. The Self-Report of Offending (Huizinga, Esbensen, Weiher, 1991) was adapted for use in this study based on the more widely studied Self-Report of Delinquency (see Huizinga & Elliot, 1986; Piquero, MacIntosh, & Hickman, 2002). The current measure included 15 items assessing lifetime and current involvement in violent (e.g., assault and weapons charges) and nonviolent (e.g., narcotics and property offenses) offending. When an item is endorsed, the measure

Table 1

*Little's Aggression Inventory -25: Items and Aggression Dimensions*

Aggression subtype	Items
"Pure" overt aggression	<p>I'm the kind of person who:</p> <ul style="list-style-type: none"> <li>• often fights with others</li> <li>• hits, kicks, or punches others</li> <li>• puts others down</li> </ul>
Overt reactive aggression	<p>When I'm hurt by someone, I often fight back</p> <p>When I'm threatened by someone, I often threaten back</p> <p>If others have angered me, I often hit, kick, or punch them</p> <p>If others make me mad or upset, I often hurt them</p>
Overt instrumental aggression	<p>To get what I want, I often:</p> <ul style="list-style-type: none"> <li>• threaten others</li> <li>• hit, kick, or punch others</li> <li>• put others down</li> <li>• say mean things to others</li> <li>• hurt others</li> </ul>
"Pure" relational aggression	<p>I'm the kind of person who:</p> <ul style="list-style-type: none"> <li>• tells my friends to stop liking someone</li> </ul>

*(table continues)*

Table 1 (*continued*)

Aggression subtype	Items
"Pure" relational aggression	<ul style="list-style-type: none"> <li>• keeps others from being in my group of friends</li> <li>• says mean things about others</li> <li>• ignores others or stops talking to them</li> <li>• gossips or spreads rumors</li> </ul>
Relational reactive aggression	<p>If others upset or hurt me, I often tell my friends to stop liking them</p> <p>If others have hurt me, I often keep them from being in my group of friends</p> <p>When I am upset with others, I often ignore or stop talking to them</p> <p>When I am mad at others, I often gossip or spread rumors about them</p>
Relational instrumental aggression	<p>To get what I want, I often:</p> <ul style="list-style-type: none"> <li>• tell my friends to stop liking someone</li> <li>• keep others from being in my group of friends</li> <li>• ignore or stop talking to others</li> <li>• gossip or spread rumors about others</li> </ul>

*Note.* By T. D. Little and colleagues. Used with permission of the author.

then probes for the age at which the youth first committed that type of offence, the frequency of occurrence since that time, as well as the context in which the offence occurred (i.e., at home, on the streets, at school, in custody). The scale has been shown to produce results concordant with official measures of delinquency (Elliott, Dunford, & Huizinga, 1987). Additionally, Knight, Little, Losoya & Mulvey (2004) reported functional invariance for this measure across gender and ethnicity.

*The Conflict Tactics Scale, Revised (CTS; Straus, 1979; CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996; revised Pepler et al., 1996).* The CTS was modified from the original 80-item version to include indices of violence and aggression within family, peer and romantic relationships. The current measure allows for the reporting of both verbal and physical forms of aggression, and aggression that has been both perpetrated by and inflicted upon the individual (e.g., “slapped mother/father”, “slapped by mother/father”). Each item is rated on a 4-point scale ranging from 1 - Never to 4 - Always. The CT scales (Straus et al., 1996) were shown to have moderate to high levels of internal consistency and reliability (alphas ranging from .79 to .95), and it was also noted that the CTS was successful in obtaining high rates of reporting for socially undesirable acts of physical and verbal aggression (Straus, 1979).

### *Procedure*

The present study is part of a larger longitudinal research project investigating the risk factors and causative mechanisms involved in female youth aggression. Ethical approval was granted for this project under the ethics review board at Simon Fraser University, as well as from the research committees at all of the data collection sites. The research protocol for this larger project includes numerous psychological tests, self-report

measures, and interviews, of which the PCL:YV, LAI-25, SRO-R, and CTS-R measures are a part. Upon completion of the protocol, youth were compensated either \$30 (residential and outpatient youth) or were provided with snacks during testing and \$10 upon completion of the protocol (incarcerated youth). All sessions were audio taped, and informed consent was obtained from both the youth and his or her legal guardian before beginning the testing sessions. Confidentiality was ensured by using participant identification numbers rather than names on all of the testing materials.

As part of the research protocol, clinical interviews were conducted with each participant lasting approximately 60-90 minutes in length, in order to gather all the information necessary to score the PCL:YV. The interviews were conducted by three graduate students who had received formal training in the administration and coding of the PCL:YV. The interview addressed the youth's educational history, work history and occupational goals, suicidal ideation, family and peer relationships, aggression and criminal activity, affect, and mood. Collateral sources of information, including developmental and social histories, pre-sentencing and disposition reports, and psychological assessments, were made available to the researchers in order to supplement the interview, as well as to resolve any conflicts that may have arisen between a youth's report during interviews and the reports of other professionals (e.g., psychologists, nurses, probation officers).

## Results

### *Descriptive Statistics*

Results reported here reflect the Cooke and Michie (2001) hierarchical three-factor model of psychopathy. This model posits that a coherent superordinate factor, Psychopathy, is underpinned by three separate subfactors: Arrogant and Deceitful Interpersonal Style (ADI), Deficient Affective Experience (DAE), and Impulsive and Irresponsible Behavioral Style (IIB). This model was developed in response to growing dissatisfactions with the traditional two-factor conceptualization developed by Hare (1991, 2003), in which interpersonal/affective traits (comprising Factor 1, or F1) are weighted equally alongside the behavioral features (comprising Factor 2, or F2). Cooke and Michie's model differs from Hare's two-factor solution primarily in its disaggregation of affective and interpersonal traits into two separate dimensions (i.e., ADI and DAE). As such, the model enables one to address increasingly refined hypotheses regarding the relationship between psychopathic traits and relevant outcomes. Of relevance for research purposes, this model avoids problems of circularity and criterion-predictor contamination by excluding items that pertain to specific criminal behaviors. This is especially important when assessing the criterion or concurrent validity of the PCL:YV with outcome measures that gauge aggressive and criminal behavior. The Cooke and Michie model retains 13 of the PCL-R's original 20 items and does not add any new ones. Total scores on the model can range from 0 to 26, and factor scores can range from 0 to 8 (Factors 1 and 2) and 0 to 10 (Factor 3).

Mean PCL:YV scores for the entire 20-item instrument ranged from 4 to 37 ( $M = 22.20$ ,  $SD = 7.40$ ) and were normally distributed. These values are largely consistent with

other published studies utilizing the PCL:YV in samples of youth on probation or in custody (e.g., Corrado et al., 2004; Forth et al., 2003; Kosson et al., 2002), but are somewhat lower than the mean scores typically seen in samples of incarcerated youth in the U.S. (i.e., 24; Brandt et al., 1997; Forth et al., 2003). For the 13-item, three-factor model, mean total scores ranged from 2 to 25 ( $M = 14.09$ ,  $SD = 4.82$ ). Factor scores averaged 3.44 ( $SD = 1.83$ ) for the Arrogant/Deceitful Interpersonal Style factor (F1), 4.28 ( $SD = 2.05$ ) for the Deficient Affective Experience factor (F2), and 6.37 ( $SD = 2.06$ ) for the Impulsive and Irresponsible Behavioral Style factor (F3).

#### *Sample Differences on Aggressive and Antisocial Behavior and PCL:YV Scores*

Using analysis of variance, males and females were compared on their mean PCL:YV total and factor scores, as well as on the mean scores they obtained on each of the criterion measures (see Tables 2 through 5). Results indicate that male and female youth evidenced comparable mean scores on a measure assessing overt and relational aggression (LAI-25), but that males on average committed more types of violent and non-violent offenses than did female youth. Males and females did not differ on an index measuring the frequency of aggression perpetrated in family and peer relationships (CTS-R). Youth in custody (males and females) had higher mean levels of overt aggression, as well as a greater variety of violent and non-violent offenses committed. Custody and residential youth did not differ on the CTS-R perpetration index. With respect to the PCL:YV, boys in the sample had significantly higher mean total and factor scores as compared to girls. Youth who were in custody evidenced higher PCL:YV total and factor scores compared to the mental health residential youth (with the exception of F1).

Table 2

*Means and Standard Deviations for the LAI-25 Aggression Subtypes*

Sample	<i>n</i>	Overt	Relational
Males	65	24.45 (7.86)	20.32 (6.64)
Females	59	22.61 (8.51)	21.59 (7.43)
Incarcerated	76	24.70 <sub>a</sub> (8.27)	21.34 (7.07)
Residential	48	21.79 <sub>b</sub> (7.84)	20.27 (6.96)
Total sample	124	23.57 (8.20)	20.93 (7.02)

*Note.* Means in the same column that do not share subscripts differ at  $p < .05$  (2-tailed). Scores can range from 12 to 48 for Overt aggression and from 13 to 52 for Relational aggression.

Table 3

*Means and Standard Deviations for the SRO-R Violent and Nonviolent Offense Types*

Sample	<i>n</i>	# Violent	# Nonviolent
Males	62	4.27 <sub>c</sub> (2.53)	2.90 <sub>a</sub> (1.92)
Females	56	3.16 <sub>d</sub> (2.16)	2.21 <sub>b</sub> (1.92)
Incarcerated	70	4.67 <sub>c</sub> (2.35)	3.56 <sub>c</sub> (1.55)
Residential	48	2.40 <sub>d</sub> (1.83)	1.15 <sub>d</sub> (1.54)
Total sample	118	3.75 (2.42)	2.58 (1.95)

*Note.* Means in the same column that do not share subscripts differ at  $p < .05$  (a, b).  $p < .01$  (c, d; 2-tailed).

Scores can range from 0 to 8 for # violent offenses and from 0 to 5 for # non-violent offenses.

Table 4

*Means and Standard Deviations for the CTS-R Total Perpetration Score*

Sample	<i>n</i>	Total Perpetration Score
Males	63	.32 (.06)
Females	56	.34 (.07)
Incarcerated	77	.32 (.06)
Residential	42	.34 (.07)
Total sample	119	.33 (.06)

*Note.* Scores can range from 0.25 to 1.0.

Table 5

*Means and Standard Deviations for PCL:YV Total and Factor Scores*

Sample	<i>n</i>	Factor 1	Factor 2	Factor 3	Total score
Males	62	3.87 <sub>c</sub> (2.00)	4.84 <sub>c</sub> (1.80)	6.77 <sub>a</sub> (2.18)	24.47 <sub>c</sub> (7.17)
Females	54	2.94 <sub>d</sub> (1.49)	3.65 <sub>d</sub> (2.15)	5.91 <sub>b</sub> (1.83)	19.59 <sub>d</sub> (6.84)
Incarcerated	73	3.59 (1.94)	4.82 <sub>c</sub> (1.96)	7.05 <sub>c</sub> (1.96)	25.36 <sub>c</sub> (6.27)
Residential	43	3.19 (1.62)	3.37 <sub>d</sub> (1.89)	5.21 <sub>d</sub> (1.70)	16.84 <sub>d</sub> (5.99)
Total sample	116	3.44 (1.83)	4.28 (2.05)	6.37 (2.06)	22.20 (7.40)

*Note.* Means in the same column that do not share subscripts differ at  $p < .05$  (a, b).  $p < .01$  (c, d; 2-tailed).

Hierarchical multiple regression analyses were run to assess whether the relationship between the PCL:YV and the criterion measures in the study were comparable across the two research sites. The interaction term (PCL:YV total score X site) was non-significant in the prediction of all dependent variables ( $ps > .05$ ), indicating that the PCL:YV is similarly associated with measures of aggression and criminality in both the custody and mental health youth samples. Therefore, data from each of the sites are analyzed together.

*Relationship of Gender and Psychopathy to Aggressive and Antisocial Behavior*

One manner in which the validity of the PCL:YV can be assessed is to investigate the strength of the relationships between the PCL:YV and indices of past aggressive and criminal behavior, and to study these associations across gender. To this end, hierarchical multiple regression analyses were computed to assess the main effects of gender and psychopathy, as well as the interaction between these two variables, in the prediction of self-reported aggression and criminal behavior (see Table 6). Beginning with overt aggression, gender and PCL:YV total score were entered in the first block of the regression, producing a significant model,  $R^2 = .20$ ,  $F(2, 109) = 13.94$ ,  $p < .001$ . This model revealed a main effect for PCL:YV total score ( $\beta = .46$ ,  $p < .001$ ), but no effect for gender ( $\beta = .04$ ,  $p > .05$ ). The interaction term was entered in the second step of the equation, failing to reveal a significant gender by PCL:YV moderation effect in predicting overt aggression. Together, these effects suggest that youth with higher levels of psychopathic traits engage in more overt aggression, and that this relationship is comparable for boys and girls. The regression equation predicting relational aggression

Table 6

*Hierarchical Regression with PCL:YV Total Score Predicting Aggression and Antisocial Behavior*

Variable	<i>B</i>	<i>SE B</i>	$\beta$
Step 1			
Gender			
LAI-25 Overt	.72	1.51	.04
LAI-25 Relational	3.40	1.38	.23*
SRO-R Violent	-.11	.40	-.02
SRO-R Non-violent	-.17	.33	-.04
CTS-R	.03	.01	.22*
PCL:YV			
LAI-25 Overt	.53	.10	.46**
LAI-25 Relational	.34	.09	.35**
SRO-R Violent	.20	.03	.61**
SRO-R Non-violent	.15	.02	.56**
CTS-R	.00	.00	.22*
Step 2			
Gender X PCL:YV			
LAI-25 Overt	.25	.21	.32
LAI-25 Relational	.19	.19	.27
SRO-R Violent	-.06	.05	-.28

*(table continues)*

Table 6 (continued)

Variable	<i>B</i>	<i>SE B</i>	$\beta$
SRO-R Non-violent	.01	.05	.03
CTS-R	.00	.00	-.22

*Note.*  $R^2 = .20, p < .001$  for Step 1;  $\Delta R^2 = .01, p > .05$  for Step 2 (Overt aggression);  $R^2 = .11, p < .001$  for Step 1;  $\Delta R^2 = .01, p > .05$  for Step 2 (Relational aggression);  $R^2 = .38, p < .001$  for Step 1;  $\Delta R^2 = .01, p > .05$  for Step 2 (Violent offending);  $R^2 = .33, p < .001$  for Step 1;  $\Delta R^2 = .00, p > .05$  for Step 2 (Non-violent offending);  $R^2 = .06, p < .05$  for Step 1;  $\Delta R^2 = .01, p > .05$  for Step 2 (CTS-R aggression). *Ns* range from 106 to 112 due to missing data.

\*  $p < .05$ . \*\*  $p < .01$ .

from PCL:YV total score and gender was similarly significant in the first step of the analysis only,  $R^2 = .12, F(2, 109) = 7.58, p < .001$ , and revealed a main effect for both gender (female;  $\beta = .23, p < .05$ ) and the PCL:YV ( $\beta = .35, p < .001$ ). Results indicate that youth with higher PCL:YV total scores engage in significantly more acts of relational aggression, and that gender (i.e., being female) is associated with higher levels of relational aggression independent of the effects of the psychopathy. As the interaction term was non-significant, this suggests that the PCL:YV predicts increased relational aggression similarly for both boys and girls.

Regression equations predicting the number of types of violent and non-violent offenses committed, as well as the frequency of aggression perpetrated in close relationships, were all significant in the first step of the analysis,  $R^2 = .38, F(2, 103) = 31.58, p < .001$ ;  $R^2 = .33, F(2, 103) = 25.17, p < .001$ ; and  $R^2 = .06, F(2, 107) = 3.58, p < .05$ , respectively. Results showed that the PCL:YV predicted engagement in more types

of violent ( $\beta = .61$ ), and non-violent offenses ( $\beta = .56$ ), as well as a higher frequency of perpetration of aggression in relationships ( $\beta = .22$ ) for both boys and girls. For aggression as measured by the CTS-R, gender also contributed significantly to the prediction model ( $\beta = .22, p < .05$ ), indicating that girls perpetrated more acts of aggression in the context of peer and family relationships independent of the effects of psychopathy.

*Examining the Differential Predictive Significance of PCL:YV Factor Scores*

To explore the contributions of individual PCL:YV factor scores in the prediction of aggression and antisocial behavior, hierarchical regressions were performed entering PCL:YV factor scores (i.e., F1, F2, or F3) and gender at the first step, and the interaction term in the second step, for each of the dependent variables. The regression equations predicting aggression from gender and interpersonal style (F1) failed to produce significant models, while the equations predicting violent and non-violent offending were significant at the first step,  $R^2 = .09, F(2, 103) = 5.32, p < .01$  and  $R^2 = .07, F(2, 103) = 3.92, p < .05$  respectively. Factor 1 showed a significant main effect in the prediction of violent offending only ( $\beta = .22, p < .05$ ).

In contrast, deficits in affect (F2) were found to be robust predictors of aggressive and criminal behavior. Regression analyses predicting aggressive behavior from gender and Factor 2 scores were significant at the first step,  $R^2 = .15, F(2, 109) = 9.90, p < .001$ ;  $R^2 = .08, F(2, 109) = 4.89, p < .01$  for overt and relational aggression, respectively. Similarly, regression analyses predicting violent and non-violent offending, as well as aggression in close relationships, all showed a significant first step of the analysis,  $R^2 = .15, F(2, 103) = 9.31, p < .001$ ;  $R^2 = .12, F(2, 103) = 6.84, p < .005$ ; and  $R^2 = .06, F(2,$

107) = 3.31,  $p < .05$ , respectively. Main effects for Factor 2 emerged across all of the dependent variables, indicating that the increased presence of affective deficits predicted higher levels of overt and relational aggression ( $\beta$ s = .39 and .27, respectively,  $ps < .01$ ), violent and non-violent offending ( $\beta$ s = .34 and .27, respectively,  $ps < .01$ ), as well as aggression in close relationships ( $\beta = .21, p < .05$ ). Gender (female) also demonstrated a significant main effect in the prediction of relational aggression ( $\beta = .20, p < .05$ ) and aggression as measured by the CTS-R ( $\beta = .20, p < .05$ ).

With respect to the behavioral features of psychopathy, youth with an irresponsible and impulsive behavioral style were seen to engage in more acts of overt ( $\beta = .38, p < .001$ ) and relational aggression ( $\beta = .23, p < .05$ ), as well as more types of violent ( $\beta = .51, p < .001$ ) and non-violent ( $\beta = .48, p < .001$ ) offenses. The prediction model for CTS-R aggression from gender and Factor 3 scores was non-significant ( $p > .05$ ). Gender was not significant in any of these models, and there were no significant interactions between gender and behavioral style in the prediction of aggression and antisocial behavior. In fact, and contrary to expectations, all of the above analyses failed to produce any significant gender by PCL:YV interaction terms, suggesting that the relationships between the interpersonal, affective, and behavioral features of the PCL:YV and the study's outcome variables are similar across gender.

#### *Assessing the Unique Contributions of Separate PCL:YV Factors*

The above analyses examined each PCL:YV factor alone; however, PCL:YV factor scores are correlated and the predicted variance in dependent variables may be shared. The next set of analyses focused on estimating the unique variance accounted for by each PCL:YV factor, controlling for the effects of other factors. As gender did not

moderate the relationship between the PCL:YV and measures of aggression and criminality, a stepwise regression analysis was performed, entering all three PCL:YV factors in one block and collapsing across gender, to assess the unique contributions of each PCL:YV factor in predicting the study's dependent measures (see Table 7). Results from these analyses indicated that deficits in affect predicted overt and relational forms of aggression for the entire sample,  $R^2 = .19$ ,  $F(1, 109) = 12.84$ ,  $p < .001$  and  $R^2 = .05$ ,  $F(1, 110) = 5.28$ ,  $p < .05$ , respectively. Furthermore, an irresponsible and impulsive behavioral style uniquely and significantly contributed to the prediction of overt aggression, as well as for violent and non-violent offending,  $R^2 = .28$ ,  $F(1, 104) = 41.05$ ,  $p < .001$  and  $R^2 = .25$ ,  $F(1, 104) = 35.09$ ,  $p < .001$ , respectively. The interpersonal features of psychopathy did not contribute to any of the regression equations. Additionally, none of the PCL:YV factor scores entered into the prediction model for aggression as measured by the CTS-R.

## Discussion

Recent increases in rates of official offending and self-reported aggressive behavior among girls has attracted considerable empirical attention. The current study was designed to investigate whether gender affects the concurrent relationships observed between psychopathic traits and measures of aggression, violence, and criminality in high-risk adolescents. Contrary to expectations, gender did not moderate the relationships between psychopathic traits, aggression and antisocial behavior. Rather, the PCL:YV total and factor scores appeared to predict diverse types of aggression and criminal behavior comparably for both boys and girls.

Table 7

*Stepwise Regression with PCL:YV Factor Scores Predicting Aggression and Antisocial Behavior*

Variable	<i>B</i>	<i>SE B</i>	$\beta$
LAI-25 Overt			
Factor 1	---	---	---
Factor 2	1.03	.44	.25*
Factor 3	.97	.44	.24*
LAI-25 Relational			
Factor 1	---	---	---
Factor 2	.77	.34	.21*
Factor 3	---	---	---
SRO-R Violent			
Factor 1	---	---	---
Factor 2	---	---	---
Factor 3	.62	.10	.53**
SRO-R Non-violent			
Factor 1	---	---	---
Factor 2	---	---	---
Factor 3	.47	.08	.50**

*(table continues)*

Table 7 (continued)

Variable	<i>B</i>	<i>SE B</i>	$\beta$
CTS-R			
Factor 1	---	---	---
Factor 2	---	---	---
Factor 3	---	---	---

*Note.*  $R^2 = .19, p < .001$  (Overt aggression);  $R^2 = .05, p < .05$  (Relational aggression);  $R^2 = .28, p < .001$  (Violent offending);  $R^2 = .25, p < .001$  (Non-violent offending);  $R^2 = .04, p > .05$  (CTS-R aggression). --- indicates the factor did not enter into the regression model, probability of *F* to enter/remove = .05/1.0.

\*  $p < .05$ . \*\*  $p < .001$ .

Results from the current study suggest that deficits in affect and empathy are important factors involved in aggressive and antisocial behavior in both boys and girls. Factor 2 scores on the PCL:YV were associated with diverse types of aggression and antisocial behavior, and uniquely contributed to the prediction of overt and relational aggression. There may be several reasons why deficient affect is central to adolescent aggression. First, empathy is regarded as a protective factor, in both males and females, that mitigates one's inclination towards violent and aggressive behavior (Bjorkvist, Osterman, & Kaukiainen, 2000; Miller & Eisenberg, 1988); in contrast, deficits in the capacity to identify with and respond to others' emotional states have been linked to a range of antisocial behaviors including aggression, violence, and conduct disorder in youth samples (Broidy et al., 2003; Cohen & Strayer, 1996). As the onset of adolescence is associated with increased capacity for complex perspective-taking and integration of empathy into behavioral regulation (Moretti & Higgins, 1999), deficits in the capacity to

represent others' perspectives and feelings towards one's own behavior puts youth at risk for responding inappropriately and/or aggressively. Literature in the field of psychopathy complements these findings, and suggests that deficits in empathic and affective processes lie at the core of the psychopathy construct and are the most salient group of symptoms for discriminating between psychopathic and non-psychopathic adult offenders (Cooke & Michie, 1997; Fowles, 2000).

Due to the correlational design of the study, however, the causal or temporal order of the relationship between deficits in affect and aggression cannot be established. One possibility is that aggressive youth, by virtue of an unstable or chaotic environment (e.g., multiple foster placements, group homes, or custody centers), gradually develop a detached, callous, or unremorseful behavioral style as a means of shielding themselves from the stressors and abuse in their lives. Although this "hardened" presentation is concordant with affective psychopathic traits, it seems important to try and draw the etiological distinction between what may be biologically or temperamentally based psychopathic features from a reactive response to a traumatic or disorganized environment which becomes consolidated over time. Abused children may have significant difficulty developing empathic or prosocial bonds to others as they progress into adolescence. This, in turn, would lead to a heightened risk for aggression to the extent that social bonds to others serve as buffers against violence and aggression (Fonagy, Target, Steele, & Steele, 1997; Stouthamer-Loeber, Loeber, Farrington, & Zhang, 1993). Longitudinal studies would be required in this respect to investigate whether environmental stressors served as precursors to affective psychopathic features in developing youth.

With respect to trauma and victimization, it is important to note that the bulk of serious offending committed by females is preceded by a history of abuse and/or trauma (Chesney-Lind, 1989, 1997; Funk, 1999). In light of this, it is important to consider whether the apparent relationship between psychopathy and aggression masks the effects of abuse and trauma (C.L. Odgers, personal communication, November 5, 2004). Studies that assess the relative predictive power of maltreatment versus psychopathy variables over time in predicting violence and aggression are required to determine whether these two factors contribute independently or interactively to outcomes, or whether one or other plays a more stable and central role. To date, there have only been a handful of studies that have reported small- to moderate-sized associations between scores on the PCL:YV and indices of past childhood abuse (e.g., McBride, 1998, Rowe, 2002).

With respect to the interpersonal (i.e., Factor 1) features of psychopathy, these traits were predictive of violent offending in both males and females. This finding is partially consistent with the literature on adult psychopathy, which suggests that Hare's original Factor 1 (i.e., comprising *both* the interpersonal and affective features) adds incremental value in the prediction of violent, as opposed to general, offending and recidivism (Hare, 1998; Hemphill & Hare, 1995). Interestingly, however, in the current study neither the interpersonal nor affective features of psychopathy contributed to the prediction of violent offending once the variance attributable to the behavioral dimension of the construct was taken into account. In fact, when regression analyses simultaneously assessed the unique predictive contribution of each psychopathy factor (i.e., interpersonal, affective, and behavioral dimensions), Factor 1 did not emerge as a significant predictor of any dependent variable. These findings call into question the

general utility of assessing psychopathic interpersonal features in youth. Although youth in this sample received scores on Factor 1 of the PCL:YV that were comparable to the other factors, it is nevertheless possible that this factor is not tapping the same construct as it is in adult samples (i.e., a manipulative, superficial, and egocentric personality style), and therefore is not related to aggression or criminality in expected ways. As other experts in the field have implied (e.g., Edens et al., 2001; Hart, Watt, & Vincent, 2002; Kosson et al., 2002), due to the fluidity of adolescent identity and personality, the interpersonal features of psychopathy are likely not crystallized in adolescents, and therefore cannot be reliably measured in youth. It is also worthwhile to note that the reliability of Factor 1 was acceptable ( $\alpha = .66$ ;  $ICC_2 = .93$ ), suggesting that the lack of predictive effect is not due to measurement or rater error.

It is also important to note that the 3-factor model of psychopathy is relatively new and few studies have examined the unique contribution of each factor in predicting aggression, violence, or criminality in either adult or youth samples (see Vincent, Vitacco, Grisso, & Corrado, 2003 for a notable exception in adolescent males). Thus, the relation of Factor 1 to aggression and violence in juveniles and adults is largely unknown. In fact, the interpersonal features of adult psychopathy which are tapped by Factor 1 have been linked to deception and malingering more so than overt acts of aggression and violence in adult samples (e.g., Rogers & Cruise, 2000).

The behavioral features of psychopathy (Factor 3) were associated with overt and relational aggression, as well as violent and non-violent offending across gender. Despite the finding, well-established in the literature, that girls develop more efficient behavioral inhibition strategies compared to boys (Keenan & Shaw, 1997; Verona & Vitale, in

press), the idea that impulsive, risky, and irresponsible behaviors are not as salient a factor in female psychopathy, and thus are less strongly related to indices of aggression and violence, was not supported by the current findings. Not surprisingly, a recent study by Corrado and colleagues (2004) demonstrated that Factor 3 items appeared to account for the bulk of the PCL:YV's power in predicting general recidivism in an all-male adolescent sample. This study used sequential stepwise Cox regression analyses to assess the unique main effects of each PCL:YV factor as well as the interaction among the factors in predicting general and violent recidivism. Findings from the current study concur with these results, demonstrating that Factor 3 scores uniquely contribute to the prediction of overt aggression and both violent and non-violent forms of antisocial behavior.

Despite the importance of Factor 3 in the prediction of aggression and criminality, it is important to note that some degree of content overlap between Factor 3 items (e.g., stimulation seeking, impulsivity, irresponsibility) and the outcome variables used in this and other studies (e.g., assault, drug offenses, impaired driving, theft) exists. Although the 3-factor model of psychopathy substantially reduces the problem of predictor-criterion contamination, the remaining overlap may continue to inflate the association between Factor 3 scores and criminal behaviors. For example, the item descriptions for "Impulsivity" and "Irresponsibility" on the PCL:YV ask the evaluator to consider instances of dangerous and reckless behavior, or behavior lacking in premeditated thought (Forth et al., 2003). It is easy to see how one or more of the offenses queried on the SRO-R (e.g., dangerous or impaired driving) could contribute to a higher score on those PCL:YV items concerned with reckless and irresponsible behavior. It is likely that

a youth who endorses multiple offense categories on the SRO will also discuss these same incidences during the course of the PCL:YV interview. This information may also appear in the collateral reports used to score the PCL:YV.

In contrast to the work done by Crick (1995, 1997) and others (e.g., Bjorkvist, Lagerspertz, & Kaukiainen, 1992; Moretti, Holland, & McKay, 2001) in the field of gender and aggression, results from the present study did not find that females engaged in higher levels of relational aggression compared to males. Findings are, however, in accordance with more recent work in the field (e.g., Odgers & Moretti, 2002; Underwood, 2003) suggesting that boys and girls engage in comparable levels of relational or social forms of aggression, and that gender differences emerge only with respect to physical aggression. It is also relevant to note that when gender was tested as a main effect along with psychopathy in regression analyses, these analyses suggested that girls engage in higher levels of relational aggression, once the effects of psychopathy are accounted for. This effect is partially due to some shifting of sample sizes between analyses (i.e., ANOVA  $n = 124$ , hierarchical regression  $n = 112$ ), as well as the fact that variance in regression analyses is assessed for each variable as if all the other predictors had already been entered into the model (Tabachnik & Fidell, 2001). Therefore, the significance of specific variables will be a direct function of the other predictor variables in that model.

Although males in the sample did show somewhat higher levels of overt aggression, this difference did not reach significance. This likely reflects the nature of the sample used in this study. Whereas the bulk of research examining gender differences in aggression has been conducted in normative samples of school aged children, the current

study utilized a sample of high-risk youth, most of whom had been diagnosed with Conduct Disorder. In contrast to the lack of gender differences in aggression, boys in the sample engaged in significantly more types of violent and non-violent offenses than did girls. However, males and females did not differ in their rates of perpetrating aggression in close relationships. This latter finding is consistent with the literature on violence in family and intimate relationships, showing highly comparable rates of violence among males and females within a relationship context (e.g., Archer, 2000; Straus, 1977; Straus, 1993).

To date, this is one of the first studies to examine the 3-factor model of psychopathy in a sample of high-risk adolescent males and females. Overall, the study provides preliminary evidence for the concurrent validity of the PCL:YV in young females. The PCL:YV total and factor scores were associated in expected ways with indices of aggression and antisocial behavior, and these relationships were largely consistent across gender. Although promising, these findings are not sufficient to conclude that the PCL:YV functions equivalently across gender, nor that it is useful in the prediction of *future* violence. First, although the sample size for the current study was equal to and even larger than the average sample size reported in published studies of juvenile psychopathy, it is nevertheless possible that there was insufficient power to detect small higher-order interaction effects among variables. Second, and perhaps most importantly, in order to gauge the functional equivalence (or inequivalence) of the PCL:YV across gender, factor analytic studies and item-response theory analyses are required to demonstrate that items on the PCL:YV are optimally tapping the underlying

construct in both male and female adolescents, and that the same dimensions (i.e., interpersonal, affective, behavioral) “capture” psychopathy in both males and females.

Of equal necessity is research attesting to the stability of psychopathic traits in adolescent males and females. Given that adolescence is a time of rapid development and maturation, it is essential to demonstrate the temporal stability and predictive utility of psychopathic traits over time. Many researchers in the field have already highlighted the ethical and empirical dilemmas involved in applying what is largely thought of as a stable personality disorder, to developing youth (e.g., Edens et al., 2001; Odgers et al., 2005; Seagrave & Grisso, 2002; Vincent & Hart, 2002).

Finally, the field of juvenile psychopathy research would benefit from expanding its focus to include not only the behavioral correlates of psychopathic traits, but also the etiological processes involved in the development of these features. Although research is beginning to elucidate the environmental and behavioral correlates of psychopathic traits in youth, the etiological roots of the syndrome remain shrouded. For instance, given that deficits in affect and empathy seem to play a salient role in both boys and girls’ aggression, the next step may be to ask how these deficits initially develop. Additionally, it would be revealing to study why certain psychopathic features appear to be predictive in adults only (e.g., interpersonal dimensions), and to investigate how and when these traits become predictive in different age cohorts. It would also be important to identify those traits that lose their predictive utility as adolescents mature into adulthood. Ironically, much of the controversy in the field of youth psychopathy centers on the maturational “flux” that characterizes adolescence, and the suggestion that the construct of psychopathy – because of the assumption of stability that accompanies it – somehow

clashes with theories of adolescent development. If the focus of study included the etiological processes that give rise to certain maladaptive behavioral and personality traits – rather than merely the detrimental behavioral outcomes that are associated with these traits – this would further the quality and relevance of this field for understanding the roots and developmental course of aggression in youth.

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