AN EXAMINATION OF THE FACTOR STRUCTURE OF THE PSYCHOPATHY CHECKLIST: YOUTH VERSION AND ITS ASSOCIATION WITH INSTRUMENTAL AGGRESSION AMONG VIOLENT FEMALE YOUTH

by

ERIN LISA HUTTON

B.A. (Honours), University of British Columbia Vancouver, 2007

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

The College of Graduate Studies

(Psychology)

THE UNIVERSITY OF BRITISH COLUMBIA

(Okanagan)

August 2011

Abstract

Female youth are a strikingly understudied population within the accumulated forensic literature which is particularly troubling since adolescent females represent a significant and growing population within forensic contexts. The Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson, & Hare, 2003) was created to assess psychopathic traits among adolescents, which include interpersonal deceptiveness, affective deficits, and impulsive, antisocial tendencies. However, to ensure its proper use, the underlying factor structure of the PCL:YV must be determined. The primary purpose of this thesis was to examine whether the two-factor, three-factor, or four-facet model is most appropriate for female youth. This is the first study to simultaneously examine all three of the primary factor models among a North American sample of violent female youth offenders. Results demonstrated that the three-factor model is the best-fitting of the three primary PCL:YV factor models among violent female youth offenders.

Further, the extant research has repeatedly demonstrated a relationship between the presence of psychopathic traits and instrumental aggression, however, researchers have only recently begun to examine this relationship among juvenile offenders, and females have often been excluded or represent only a small proportion of mixed samples. A secondary goal of the current thesis was to examine the relationship between psychopathy total, factor, and facet scores and instrumental aggression in a sample of female offenders. Contrary to previous studies on male youth, results revealed that female youth with psychopathic traits were not significantly more likely to use instrumental violence in the commission of their violent crimes. Findings and their respective research and clinical applications are discussed.

Preface

Ethics approval for this research was granted by the University of British Columbia's Behavioural Research Ethics Board on June 25th, 2010. The ethics certificate number is: H10-00683.

Table of Contents

List of Tables

List of Figures

Acknowledgements

I owe my deepest gratitude to my supervisor, Dr. Michael Woodworth. Thank you for your guidance and inspiration over the past two years. Your thoughtful feedback has been invaluable and your continued belief in my capabilities has motivated me to complete this thesis.

To Dr. Heather Gretton, Director of the Program Evaluation and Research (PER) department of Youth Forensic Psychiatric Services, thank you for your time and commitment to this project. I am grateful for the help of Robert Clift and Sarah Johnson of PER; you both have invested considerable time and effort in helping to organize and complete this project. Also, thank you to Andrea McQueen and Janice Cartwright of the Kelowna Outpatient Clinic for your assistance and support.

I am indebted to my committee members, Dr. Zach Walsh, Dr. Brian O'Connor, and my external reviewer, Dr. Shirley Chau. Thank you for your insightful comments and for making this thesis a work I am proud of.

Thank you to my friends both in Kelowna and Vancouver for their understanding and for being available to listen and offer advice when needed. Thank you to Julia for being such a great friend from the very first day of graduate school. I am also thankful to Tom, who provided perspective in challenging times and continues to be a genuine friend. I look forward to enjoying more time with such incredible friends.

Finally, I would like to thank my immediate and extended family for their encouragement, support and for their continued confidence in me while pursuing my goals both present and future. To Mom, Dad and Adam, thank you for listening in times

of happiness and hardship and for allowing me to express my thoughts and emotions.

You have always supported me in whatever I have chosen to do and I am sincerely

grateful for your understanding and compassion.

To my family and friends,

Thank you for your incessant encouragement and support.

1   Introduction

Female youth are an important and growing population within criminal justice settings (Porter, 2000), however, they are also the most understudied population in the forensic literature. In recent years, violence among young females has increased both in terms of number offences committed as well as the severity of these offences (Cauffmann, Lexcen, Goldweber, Shulman, & Grisso, 2007; Puzzanchera, Stahl, Finnegan, Tiernet, & Snyder, 2003; Savoie, 2000; Thomas, 2005). In turn, to prevent the occurrence of serious forms of violence among these girls, we first need to better understand why it occurs. Some researchers (e.g., Flight & Forth, 2007) have suggested that youth violence can be understood through an examination of psychopathy and instrumental violence. Indeed, research among adults (e.g., Cornell et al., 1996; Woodworth & Porter, 2002), and more recently, adolescents (e.g., Agar, 2009; Flight & Forth, 2007), has demonstrated that a relationship does exist between these two constructs. However, females have often been excluded or represent only a small proportion of mixed samples in these studies.

Psychopathy is characterized by a constellation of interpersonal (e.g., manipulation, deceit, egocentricity), affective (e.g., lack of empathy, remorse, or guilt), behavioural (e.g., irresponsibility, impulsivity), and antisocial (e.g., poor anger control, serious criminal behaviour) traits (Hare, 2003, 2006). The Psychopathy Checklist: Youth Version (Forth, Kosson, & Hare, 2003) is commonly used to assess psychopathic traits in youth. Although the majority of research has been conducted on males, clinicians and researchers have more recently acknowledged the importance of examining the utility of this measure among female samples. To ensure that the PCL:YV is properly used

among female youth populations, the current study will first determine the most appropriate factor structure of the PCL:YV among violent female youth. This study will then extend the existing research that has demonstrated a relationship between psychopathy and aggression among a large female sample. This research represents the most comprehensive empirical examination of the construct of female youth psychopathy and instrumental violence in North America.

1.1   Why Study Psychopathy?

The construct of psychopathy is now well validated among adult males, and to a lesser extent, among adult females (Bolt, Hare, Vitale, & Newman, 2004; Hare, 2003; Jackson, Rogers, Neumann, & Lambert, 2002). Among adult offenders, a large body of research has identified relations between psychopathic characteristics and current, as well as future, antisocial and violent behaviour (e.g., Hart, Kropp, & Hare, 1988; Leistico, Salekin, DeCoster, & Rogers, 2008; Serin, 1993; Walters, 2003). Offenders with psychopathic traits commit more crimes than offenders without these traits (e.g., Crawley & Martin, 2006; Hare, 1991; Hare, McPherson, & Forth, 1988; Hicks, Vaidyanathan, & Patrick, 2010; Porter, Birt, & Boer, 2001), they commit a larger variety of crimes (Hare, 1994; Kosson, Smith, & Newman, 1990; Porter et al., 2001; Porter, Woodworth, Earle, Drugge, & Boer, 2003), and their crimes are also more violent than their nonpsychopathic counterparts (Hare, 1981; Juodis, Woodworth, Porter, & ten Brinke, 2009; Kosson, Smith, & Newman, 1990; Porter, ten Brinke, & Wilson, 2009; Porter et al., 2003; Rice, Harris, & Quinsey, 1990; Serin, 1990; Wong, 1984). In fact, psychopathy scores have shown such a consistent empirical association with violence among the adult literature (Hemphill, Templeman, Wong, & Hare, 1998; Porter &

Woodworth, 2007; Walsh & Kosson, 2007) that Hart (1998) asserted "a full understanding of violence is impossible without consideration of the role played by psychopathy" (p. 367).

Numerous studies have been devoted to understanding adult psychopathy and findings among adult offenders have led researchers to investigate psychopathy among younger populations. The emerging adolescent literature does suggest support for the existence of similar psychopathy correlates as seen in adult samples (Campbell, Porter, & Santor, 2004; Flight & Forth, 2007; Frick, Cornell, Barry, Bodin, & Dane, 2003; Fritz, Wiklund, Koposov, Klinteberg, & Ruchkin, 2008; Lindberg et al., 2009; Murrie, Cornell, Kaplan, McConville, & Levy-Elkon, 2004; Vitacco, Caldwell, VanRybroek, & Gabel, 2007). For example, psychopathy scores have been shown to be associated with violent behaviour among adolescents (Campbell et al., 2004; Flight & Forth, 2007; Murrie et al., 2004). Indeed, youth with more psychopathic traits are generally more violent (Frick et al., 2003; Fritz et al., 2008), they are more likely to use excessive violence in the commission of their crimes (Lindberg et al., 2009), and their victims sustain greater injury (Vitacco et al., 2007) than youth who possess fewer psychopathic traits.

Studying psychopathy in youth is important for several reasons. First, the study of psychopathy during childhood or adolescence may reveal important insights into the etiology of this disorder (Blair, Peschardt, Budhani, Mitchell, & Pine, 2006; Forth & Burke, 1998; Lynam, 1996; Lynam & Gudonis, 2005; Vitale & Newman, 2001). Second, given the recalcitrant nature of psychopathy in adulthood, some have suggested that intervention and treatment efforts might yield more success if implemented at an earlier age (Forth & Mailloux, 2000; Frick, Barry, & Bodin, 2000; Roberts & DelVecchio, 2000).

Third, it has been suggested that the assessment of psychopathy during adolescence is a useful tool for risk assessment and case management of juvenile offenders (Campbell et al., 2004; Corrado, Vincent, Hart, & Cohen, 2004). There is also mounting evidence supporting adolescent psychopathy as a reliable and valid construct (e.g., Forsman, Lichtenstein, Andershed, & Larsson, 2008; Forth, Hart, & Hare, 1990; Kotler & McMahon, 2010; Lynam, 1998; Lynam, Caspi, & Moffitt, 2007; Lynam et al., 2009; Salekin, Rosenbaum, & Lee, 2008). For example, Forsman and colleagues found that psychopathy was a stable, reliable trait from mid to late adolescence. Specifically, total psychopathy scores did not change for the vast majority of males (76.6%-88.8%) and females (86.9%-91.0%) between 16 and 19 years of age. Similarly, Lynam and colleagues (2007) found psychopathic traits to be stable from early adolescence to young adulthood, even after controlling for 13 important age-related variables (e.g., socioeconomic status, parenting, peer delinquency). The interested reader is referred to Frick and White (2008) for a review of the literature supporting the stability of this construct across youth into adulthood.

Despite these rationales for studying adolescent psychopathy, contrary arguments exist in applying this construct in children and adolescents (Edens, Skeem, Cruise, & Cauffman, 2001; Seagrave & Grisso, 2002; Sharp & Kine, 2008). Concerns revolve around several key issues, including the malleability of personality during childhood and adolescence (cf. Roberts & DelVecchio, 2000); difficulty finding appropriate sources of collateral information (e.g., official records, credible informants); and the reliability and validity of juvenile psychopathy measures across raters, time, psychopathology constructs, and ethnicity (cf. Edens & Vincent, 2008; Seagrave & Grisso, 2002;

Schmidt, McKinnon, Chattha, & Brownlee, 2006; Sevecke, Lehmkuhl, & Krischer, 2009). However, arguably, the primary concern (cf. Lynam & Gudonis, 2005) regarding this issue is that the construct of juvenile or "fledgling" psychopathy (Lynam, 1996) is often applied in forensic settings, particularly for sentencing and treatment decisions which can have serious implications. The serious nature of applying these traits to a youth was revealed in a study by Edens, Guy, and Fernandez (2003). These researchers demonstrated that psychopathic traits in the description of a juvenile offender led to an increase in American college students' endorsement of the death sentence for juveniles. In contrast, however, a series of empirical studies investigating judges', jurors', and clinicians' decisions regarding hypothetical juvenile defendants in several vignettes suggests that the label of psychopathy does not negatively impact a defendant in terms of placement or treatment recommendations in comparison with individuals labelled conduct-disordered or those with no diagnosis (Boccaccini, Murrie, Clark, & Cornell, 2008; Murrie, Boccaccini, McCoy, & Cornell, 2007; Rockett, Murrie, & Boccaccini, 2007). Boccaccini and colleagues found that a history of antisocial conduct was a more consistent predictor of ratings of risk and support for harsher punishment than the label of psychopath. Evidently, based on the existing theoretical and empirical literature, the debate continues over the application of the construct of psychopathy to adolescents.

Extending the psychopathy construct to youth is a controversial issue, yet, as pointed out by Frick, Bodin, and Barry (2000), the alternative to examining and identifying specific subgroups of conduct-disordered youth with psychopathic-like dimensions is to assume that all youth displaying antisocial behaviour comprise a homogeneous group. However, research has not supported this assumption. Indeed,

only a small proportion of conduct-disordered youth display callous and unemotional traits associated with psychopathy (Frick, 2002; Frick et al., 2000; Salekin, 2006; Salekin & Frick, 2005). Given this research and the concerns outlined previously, it is imperative that assessments of psychopathy on adolescents be well validated and shown to have a reliable and useful factor structure. In fact, an investigation of the factor structure of psychopathy assessment measures is a necessary first step in addressing other forms of an instrument's validity such as its predictive (e.g., recidivism) validity; a measure cannot be used effectively prior to determining its factor structure.

1.2 Factor Structure of the PCL:YV

Under the assumption that psychopathy manifests itself in much the same way in adolescents as it does in adults, methods for assessing youth psychopathy have used downward extensions of the construct of adult psychopathy. The assessment of psychopathy in adults is accomplished through the use of the Psychopathy Checklist – Revised (PCL – R; Hare, 2003), which is considered by many to be the gold standard for assessing psychopathic traits among adults (Acheson, 2005; Edens et al., 2001; Salekin, Rogers, & Sewell, 1996). Relatively recently, Frick (2002) advocated that research on psychopathic tendencies in youth be informed by a developmental perspective. Consistent with this recommendation, Forth et al. (2003) created the Psychopathy Checklist: Youth Version (PCL:YV; See Appendix A), which is based on the PCL – R, by modifying nine of the 20 items to reflect the different contexts in which adolescents function and to ensure appropriate attention to developmental norms. For example, item 9 on the PCL – R, "parasitic lifestyle" which includes living off of or being supported by others was considered by some to be inappropriate since youth are

expected to be financially supported by their families. This item was changed to "parasitic orientation" which considers excessive or atypical exploitation of others by the youth. Also, item 17 on the PCL – R, "many short-term marital relationships", which assesses the number of marriages/common law relationships an individual has had, was changed on the PCL-YV to "unstable interpersonal relationships", which assesses the stability of friendships and intimate relationships. Further, instructions were modified to emphasize the nature of normal adolescent behaviour and its variability over time, and to ensure that raters evaluate the individual's behaviour in the context of normative behaviour of same-age peers. Finally, the scoring system was developed to reflect the greater involvement of peers, family, and school in the lives of adolescents.

Researchers have made ongoing efforts to determine the most appropriate factor structure of the PCL – R and its youth derivative, the PCL:YV (e.g., Cooke & Michie, 2001; Forth et al., 2003; Hare, 2003; Hill, Neumann, & Rogers, 2004; Jones, Cauffmann, Miller, & Mulvey, 2006; Sevecke, Pukrop, Kosson, & Krischer, 2009). Three main latent variable models have been proposed for representing the factor structure underlying the PCL – R in adults and all three models are potentially applicable to PCL:YV ratings in determining whether psychopathy in youth is structurally similar to that in adults (see Appendix B).

The original two-factor PCL – R model was reported by Harpur, Hakstian, and Hare (1988; Hare et al., 1990; Hare, 1991; Harpur, Hare, & Hakstian, 1989). In this model, 17 of the 20 PCL – R items load on two correlated dimensions. The first, commonly referred to as Factor 1, represents interpersonal and affective features of psychopathy. The second, commonly referred to as Factor 2, reflects chronic impulsive,

irresponsible, and antisocial tendencies. The two-factor model has been extensively researched in both criminal and forensic patients. However, confirmatory factor analytic studies of the PCL – R have yielded mixed support for the two-factor model (Cooke & Michie, 2001; Hare, 2003; Hill et al., 2004; McDermott et al., 2000). These inconsistent results for the two-factor model led to the proposal of two alternative models for the PCL measures (Cooke & Michie, 2001; Hare, 2003).

The first fundamental change to the factor structure of PCL measures was proposed by Cooke and Michie (2001). Both Cooke and Michie (2001) and Blackburn (1998) suggested that because antisocial behaviour may occur for a number of reasons, other than psychopathy, caution should be taken when grouping personality traits and antisocial behaviour together when studying this disorder. Cooke and Michie (2001) proposed a three-factor model composed of a selected set of 13 PCL – R items. In this model, the items measuring overt antisocial behaviour were eliminated and the eight items in Factor 1 were split into two distinct dimensions, one focusing on interpersonal style and the other on affective deficits. These factors were labelled *Arrogant and Deceitful Interpersonal Style* and *Deficient Affective Experience*, respectively. The third factor was labelled *Impulsive and Irresponsible Behaviour*.

In response to Cooke and Michie's (2001) exclusion of antisocial items, a four-facet model was developed (Forth et al., 2003; Hare, 2003; Hare & Neumann, 2006; Vitacco, Neumann, & Jackson, 2005) which represents the psychopathy construct in terms of interpersonal, affective, lifestyle, and antisocial facets. The first three facets are identical with the three factors in the Cooke and Michie (2001) model, apart from the labels that are assigned to the facets. Hare proposed this model, maintaining that

antisocial items are a component of the psychopathy construct and are of essential clinical value. This model is currently employed in the second edition of the PCL – R (Hare, 2003) and in the PCL:YV (Forth et al., 2003).

In the development of the PCL:YV (Forth et al., 2003), exploratory and confirmatory factor analyses were used to elucidate the best underlying structure of this measure. In the manual, Forth and colleagues suggested that the three-factor model (Cooke & Michie, 2001) and the four-facet model (Hare, 2003) provided relatively good representations of the internal structure of the psychopathy ratings among their pooled, predominantly male adolescent standardization sample. The authors, however, stated that in terms of overall comprehensiveness, the four-facet model was an attractive summary of the structure of the underlying PCL:YV scores since it includes all of the three-factor model factors but also includes a robust antisocial factor. Notably, the standardization sample used to conduct these analyses was composed of 19 smaller subsamples of youth drawn from three countries (i.e., Canada, United Kingdom, and the United States) and included a mixed representation of institutionalized offenders, offenders on probation, in open custody, or arrested youth referred for outpatient evaluation, as well as youth in the community. Forth and colleagues further investigated the fit of the three-factor and the four-facet models using only the female youth that were part of the original standardization sample. As mentioned, these youth were drawn from numerous smaller subsamples across three different countries and their pooled sample was used to conduct the analyses. Their results revealed that Cooke and Michie's (2001) three-factor model provided the best fit to their female data, however, considering the diversity of their sample, additional analysis is warranted.

A long line of research has demonstrated good support for the four-facet PCL – R model among adult males (e.g., Hare & Neumann, 2005; Hare & Neumann, 2008; Neumann, Vitacco, Hare, & Wupperman, 2005; Vitacco, Rogers, Neumann, Harrison, & Vincent, 2005). In contrast, studies investigating the factor structure of the PCL – R among adult female samples have been sparse. The available research has shown that the three-factor model has considerable promise in capturing the underlying dimensions of psychopathy in females (Jackson et al., 2002; Warren et al., 2003; Weizmann-Henelius et al., 2010). For instance, Weizmann-Henelius and colleagues demonstrated that the two-factor model was not a good fit, whereas the three-factor model was deemed to be the best fit of their female homicide offender data. The four-facet model was not tested among their sample. The three-factor model was also tested simultaneously alongside the two-factor model by Kosson, Cyterski, Steuerwald, Neumann, and Walker-Matthews (2002) among a sample of 115 male adolescents on probation. Using confirmatory factor analysis, they were unable to validate either factor structure conclusively; fit indices indicated that the two-factor model was a poor fit to their adolescent male data and, while some fit indices were considered good for the three-factor model, others did not meet acceptable criteria. However, these authors suggested that the construct was overall better described by a three-factor than a two-factor model.

Recently, the fit of the two-factor, three-factor, and four-facet models of the PCL:YV were evaluated and compared on a sample of 122 male adolescents incarcerated in a facility for serious and chronic offenders (Vitacco, Neumann, Caldwell, Leistico, & Van Rybroek, 2006). Confirmatory factor analysis revealed good model fit for

the three-factor and four-facet latent variable models of adolescent psychopathy whereas the two-factor model demonstrated unsatisfactory model fit. They concluded that although the three-factor and four-facet models were similar in terms of goodness-of-fit, the four-facet model was preferred since it accounted for more variance in the construct of instrumental aggression (i.e., the four-facet model was better able to predict the use of instrumental aggression). Another study, which was conducted by Sevecke et al. (2009), tested the two-factor, three-factor, and four-facet models among two German, male adolescent samples: one incarcerated offender sample and one community student sample. Their results showed that the three-factor model provided better fit than the other two competing factor models for both the community and incarcerated samples. The fit of the two-factor model was mixed, with some indices suggesting adequate fit and others suggesting inadequate fit, and the fit of the four-facet model was problematic in both samples. These two studies suggest that the three-factor model appears promising among both incarcerated and community offender samples, however, Vitacco and colleagues demonstrated that when comparing the utility of these two models in the prediction of aggressive behaviour, the four-facet model is preferred.

Since the PCL:YV's development, there have only been two empirical studies to test the factor structure of the PCL:YV with samples that have included female adolescents. The first was an American study conducted by Jones et al. (2006). Their analysis showed that modified versions of the Cooke and Michie (2001) three-factor model and the Hare (2003) four-facet model each demonstrated moderate fit. However, the initial models did not fit the data well meaning that the original three-factor and four-facet models had to be modified to provide better fit with their sample of adolescent

females. When a model is considered a poor fit, an examination of modification indices can offer insight on how to improve the fit of the model. When these indices are consulted, however, the analysis shifts from being confirmatory to being exploratory and any alteration to the model must have a theoretical and substantive basis. Jones et al. (2006) examined modification indices which revealed significant error covariation between two pairs of items: items 1 and 2 (impression management and grandiose sense of self-worth, respectively) of both the three-factor and four-facet models, and items 18 and 20 (serious criminal behaviour and criminal versatility, respectively) of the four-facet model. Based on theoretical rationale, an additional parameter was included representing the error covariation for each of these two pairs of items. However, it is worth restating that these researchers' findings were exploratory in nature, meaning that their modified three-factor model was not confirmed. Also, despite the fact that the two-factor model had not been discredited among an adolescent sample, this model was not tested on their sample of female youth. The second, more recent, study to have included female youth was conducted by Sevecke et al. (2009) and they tested all three models on a sample composed of German female detainees. They concluded that although the fit of the three-factor model was near conventional cut-offs for most indices examined, none of the three models provided consistently accurate fit among female adolescents. Consequently, the underlying factor structure of the PCL:YV among female adolescents remains uncertain.

The existing literature provides preliminary evidence that psychopathy may have a similar factor structure in adults and adolescents; however, it is clear that there exists little research that has assessed the factor structure of the PCL:YV in adolescents, and

particularly females. Results from studies with adult female offenders (Bolt et al., 2004; Nicholls, Ogloff, & Douglas, 2004; Salekin, Rogers, & Sewell, 1997; Vitale, Brinkley, Hiatt, & Newman, 2007; Vitale, MacCoon, & Newman, 2011; Warren et al., 2005; Weizmann-Henelius et al., 2010) and adolescent female offenders (Schrum & Salekin, 2006) have shown that the construct of psychopathy is also applicable to these populations. Nonetheless, results from the two studies described above that have included female youth have raised some doubts about the applicability of the three primary factor models to this population in particular, and demonstrate the need to further evaluate the structure of the PCL:YV in adolescent females. Indeed, before the PCL:YV can be used effectively with female youth, researchers and clinicians arguably must be more confident about the most appropriate factor structure of this measure.

The PCL:YV factor structure that is most appropriate for use with youth samples may differ across gender for two main reasons. The first being that psychopathy may be expressed differently in females than it is in males; the underlying personality features may be the same but their overt behavioural manifestation may be different. Indeed, gender-role socialization and biological sex differences might result in the underlying traits of psychopathy to be displayed differently in males and females (Cale & Lilienfeld, 2002; Hamburger, Lilienfeld, & Hogben, 1996; see Nicholls & Petrila, 2005). Since females tend to have less upper body strength than males, females may use manipulation, flirtation, or coercion to achieve their goals more so than males (Nicholls & Petrila, 2005). Indeed, they may display less overt forms of antisocial behaviour which is consistent with other investigations (e.g., Odgers & Moretti, 2002). The second reason for potential differences in the factor structure of the PCL:YV across gender has

to do with whether the measure is working differently in males and females. Specifically, certain PCL:YV items may consistently function differently in females than they do in adolescent males. In fact, whereas the concept of psychopathy, as measured by the PCL:YV, appears to be capturing the items that compose Factor 1 well (Schrum & Salekin, 2006) females may need higher levels of antisocial behaviour traits to be considered psychopathic. Also, although item 11 (impersonal sexual behaviour) of the PCL:YV is not included in the factor structure of the measure, this item may function differently in female youth than it does in male youth. For instance, although both males and females with psychopathic traits are likely to engage in impersonal sexual acts, female youth are also more likely to engage in the criminal act of prostitution than their male counterparts (Duchesne, 1997) resulting in greater mean scores for this particular item among female youth. Males are likely to engage in impersonal, casual, and trivial sexual behaviour as a means to achieve status among their friends, whereas females are more often engaging in such acts to obtain money or drugs; indeed, although the overt behaviour is the same, the underlying motives for engaging in promiscuous sexual behaviour may likely differ across gender.

Potential model differences in the PCL:YV across gender may also be understood through closer inspection of the personality traits and behavioural indicators that define psychopathy. The psychopathic personality traits that compose the underlying disorder of psychopathy are likely extreme variants of common personality traits (Costa & Widiger, 1994). Indeed, it has been argued that psychopathy can be understood as a configuration of personality traits from a model of general personality functioning (Lynam, 2002; Miller, Lynam, Widiger, & Leukefeld, 2001; Widiger & Lynam, 1998). The

five-factor model (FFM; Costa & McCrae, 1992) of normal personality functioning consists of five broad domains of personality: (1) neuroticism, (2) extraversion, (3) openness to experience, (4) agreeableness, and (5) conscientiousness. Using this model of personality as a framework, researchers have argued that psychopathy can be understood as a mixture of low agreeableness and conscientiousness, high extraversion, and a combination of low and high neuroticism (low anxiety, depression, vulnerability to stress, and self-consciousness; but high angry hostility and impulsiveness; e.g., Lynam, 2002; Miller et al., 2001; Widiger & Lynam, 1998). However, research examining the relation between psychopathology and psychopathy has demonstrated differences in the manifestation of internalizing (e.g., anxiety, depression, suicidality, posttraumatic stress disorder) and externalizing (e.g., attention deficit hyperactivity disorder, conduct disorder, substance use disorder) symptomatology across gender among a delinquent adolescent sample (e.g., Sevecke, Lehmkuhl, et al., 2009). Specifically, Sevecke and colleagues demonstrated that externalizing behaviour was positively related to all psychopathy dimensions, and that anxious-depressive behaviour was inversely related to the affective factor as well as the PCL:YV total score among the males in their sample. Although these findings appear consistent with the FFM account of psychopathy, findings among females are not as encouraging. For instance, among the female adolescents in their sample, suicidal behaviour was positively related to the PCL:YV total score as well as the affective, lifestyle and antisocial factors. Consequently, in consideration of the disparity in internalizing and externalizing symptomatology across gender, differences may arise in the factor structure of this measure.

Understanding the factor structure of the PCL:YV is necessary to establish the reliability of the measure and to allow researchers to consistently identify which factors mediate negative outcomes, a critical endeavour given the importance of intervention with at-risk youth (Salekin, Brannen, Zalot, Leistico, & Neumann, 2006). The explication of factor structure will provide important and rich information on the core behavioural characteristics and personality features of female adolescents with psychopathic traits and will help to delineate the exact nature of the disorder. This type of knowledge is essential in clinical settings especially in developing effective treatment programming targeted specifically for female youth. For example, an understanding of the personality features that are salient in the manifestation of violence among females will ensure that clinicians place utmost importance in addressing these features.

1.3   Psychopathic Traits and Aggression

There is a striking lack of studies examining female youth and more studies would be valuable since adolescent females represent a significant and growing population within forensic contexts (Porter, 2000). For example, in the United States the growth in person offense cases was greater for adolescent females (157%) than for males (71%; Puzzanchera et al., 2003) and between 1993 and 2002, arrests for aggravated assault decreased 29% for males and increased 7% for girls. Similar trends have been observed in Canada (Savoie, 2000). Indeed, between 1996 and 2002, when a slight decrease was noted in the rate of violent crime committed by boys, a modest increase was observed for girls (Thomas, 2005). Further, although overall rates of juvenile violence are on the decline, this is not the case for female juvenile offenders, as violent offending among this population is on the rise (Cauffman et al., 2007).

Female youths' engagement in aggressive and violent behaviour cannot be predicted by a single factor but rather by numerous factors acting in combination, and their motives are likely different than their male youth counterparts. Contributing to the risk of such behaviours among girls are both systemic (e.g., family, community and social context) and individual (e.g., personal) variables (Andrews & Bonta, 1998).

Family and social variables that have been shown to be related to aggressive behaviour among youth include: social and financial deprivation; harsh and inconsistent parenting; parents' marital problems; family violence (i.e., between parents, by parents toward children or between siblings); poor parental mental health; physical and sexual abuse; and alcoholism, drug dependency or other substance misuse by parents or other family members (Leschied, Cummings, Van Brunschot, Cunningham, & Saunders, 2001).

In the community, girls are more likely to use violence if they experience social rejection or if they display a lack of attachment to school (Levene, Madsen, & Pepler, 2005). If these girls are seeking to improve their self-esteem, increase their feelings of belonging, or seek revenge and protection, gang membership can be appealing (Joe & Chesney-Lind, 1995), however, delinquent peer associations also lead to greater opportunities to engage in aggressive behaviour. Female youth tend to attack other girls who are perceived as competing with them for male attention, and they tend to maintain social connections with peers who are perceived as helping them win in that competition (Artz, 2000).

An examination of the individual factors that are related to girls' use of violence reveals that aggressive and violent girls often report having been victimized by others

(Leschied et al., 2001; Moretti, Catchpole, & Odgers, 2005). These girls are more likely than non-violent girls and both violent and non-violent boys to have been attacked on their way to or from school, physically abused at home, sexually abused or coerced into sexual relations (Pepler & Sedighdeilami, 1998). Finally, although the abuse of drugs and alcohol contributes to aggression in both sexes, chronic use of drugs seems to be strongly related to ongoing participation in violence particularly among girls (Auditor General of BC, 2000).

Considering the increase in both the number and severity of offences committed by female youth, it is imperative to understand these girls' motivations for aggression. Aggression is a heterogeneous construct that stems from multiple causes and consists of subtypes, each reflecting a range of pathology. Recognizing the heterogeneous nature of aggression, Berkowitz (1993) theorized the existence of two primary types: reactive and instrumental. *Reactive* aggression is defined by failing to inhibit responses to apparent provocation or frustration (see Schmitt & Newman, 1998), whereas *instrumental* aggression is defined by the presence of planning and the lack of affect (see Meloy, 2006). Thus, a critical differentiation between reactive and instrumental aggression concerns the *motive* of aggression (Raine et al., 2006). Although violence can be conceptualized as either reactive or instrumental, these categories are not mutually exclusive, and it has been proposed by some that an aggressive act may contain elements of both (Bushman & Anderson, 2001). In response to attacks on the potential artificiality of the instrumental-reactive dichotomy (Dempster et al., 1996; Hart & Dempster, 1997), Woodworth and Porter (2002) suggested classifying violent offences into one of four categories: (a) purely reactive, (b) reactive/instrumental, (c)

instrumental/reactive, and (d) purely instrumental. In this model, purely reactive and purely instrumental violence represent the polar ends of a continuum of motivation. However, these extremes are separated by violence that is primarily driven by reactive emotionality, but has some elements of instrumentality, and violence that is primarily driven by instrumental gain, but has some elements of reactivity.

It has been suggested (i.e., Vitacco et al., 2006) that viewing instrumental aggression through the lens of psychopathy can provide useful information pertaining to the causes of aggression. The adult psychopathy literature has recognized a substantial connection between psychopathic traits and instrumental aggression (e.g., Cornell et al., 1996; Walsh, Swogger, & Kosson, 2009; Williamson, Hare, Wong, 1987; Woodworth & Porter, 2002). Two studies have arguably been particularly relevant in informing the literature on the nature of psychopathy and instrumental aggression in adult samples. Cornell et al. (1996) completed an important study on the nature of psychopathy and instrumental aggression in 106 male inmates and 50 pre-trial forensic referrals with violent histories. In completing their study, Cornell and colleagues developed an innovative coding system for classifying aggression which assessed six distinct domains: (a) planning, (b) goal directedness, (c) provocation, (d) anger, (e) victim injury, and (f) victim relationship. They found that 50% of PCL–R items were significantly higher in offenders who had histories of instrumental aggression compared with those with no documented history of instrumental aggression.

The second study was conducted by Woodworth and Porter (2002) on a sample of 125 Canadian offenders convicted of homicide. Woodworth and Porter rated each homicide on their continuum described earlier in this section. Results indicated that

psychopathic offenders were significantly more likely to commit an instrumental homicide (93.3%) than their nonpsychopathic counterparts (48.8%). These researchers attributed the high proportion of instrumental homicides committed by psychopaths to their marked lack of empathy, speculating that empathy and concern for others acts as a deterrent to engaging in instrumental violence. Their analyses revealed that although both Factor 1 and Factor 2 were relevant in understanding this relationship, Factor 1 (e.g., the interpersonal and affective characteristics) was particularly important. Similarly, results from both an early study by Williamson et al. (1987) and a more recent study conducted by Walsh et al. (2009) revealed that among adult offenders, those with high PCL–R scores frequently engaged in violent crimes that were goal directed and purposeful (e.g., for revenge or financial benefit). Further, among a community sample of both men and women, Nouvion and colleagues (Nouvion, Cherek, Lane, Tcheremissine, & Lieving, 2007) found that individuals classified as proactively aggressive (based on behavioural testing) had significantly higher psychopathy scores than those classified as reactively aggressive.

Although the link between psychopathy and instrumental violence is well documented in the adult literature, it is less researched among youth samples. However, consistent with the downward extension of psychopathy to adolescence, research has begun to analyze the association between psychopathy and instrumental aggression in juvenile offenders (e.g. Agar, 2009; Carpenter, 2010; Cook, Barese, & Dicataldo, 2010; Flight & Forth, 2007; Kruh, Frick, & Clements, 2005; Murrie et al., 2004; Vitacco et al., 2006). One study conducted by Murrie et al. (2004) evaluated the association between psychopathy and instrumental aggression in 113 incarcerated

male youth. Using a coding system similar to the one developed by Cornell et al. (1996), Murrie and colleagues found that PCL:YV total scores were correlated ($r = .36$) with instrumental aggression. Likewise, Kruh and colleagues established that male young adults (M age = 18.37 years) who committed unprovoked violence had higher psychopathy scores as measured by the Antisocial Process Screening Device (Frick & Hare, 2001) compared to individuals who committed aggressive acts in response to provocation. The only study in the female youth offender literature to examine instrumental aggression and its association with psychopathy was conducted recently by Cook and colleagues. Utilizing a small (n = 41) female violent offender sample, youth scoring high on the PCL:YV did not differ from low-scoring female offenders in their use of proactive (instrumental) violence. When examining male youth (n = 47), however, these researchers found that offenders scoring high on the PCL:YV did display higher rates of proactive violence.

Recently, researchers have begun to examine factor-level relationships with instrumental violence among male youth (Carpenter, 2010; Flight & Forth, 2007; Vitacco et al., 2006). Among their high PCL:YV scoring ($M = 31.26$, $SD = 5.17$) male sample, Vitacco and colleagues demonstrated that the four-facet model of the PCL:YV accounted for 20% of the variance in instrumental aggression whereas the three-factor model and two-factor models accounted for 8% and 5% of the variance in instrumental aggression, respectively. Using structural equation modeling to examine how the individual facets were related to instrumental aggression, these researchers found that when using a four-facet model, the interpersonal facet was able to positively predict the use of instrumental aggression, and the antisocial facet was inversely predictive of

instrumental aggression. However, when the antisocial facet was removed (i.e., three-factor model was used), the interpersonal facet no longer predicted instrumental aggression and only the lifestyle factor was positively related to instrumental aggression. The authors interpreted this finding as suggesting that the antisocial facet was of central importance in the underlying factor structure of psychopathy since the other psychopathy factors took on greater strength when the antisocial factor was included in the model.

Flight and Forth's (2007) investigation of the relationships among psychopathy and instrumental violence in young offenders has been equally revealing. Among a small sample of 51 male young offenders they found that psychopathic youth were using a combination of instrumental and reactive violence. However, similar to Woodworth and Porter's (2002) study with adult offenders, youth who were classified as instrumentally violent scored higher on psychopathy. In addition, consistent with the adult literature, Facet 1 (interpersonal) and Facet 2 (affective) scores on the PCL:YV were more strongly related to instrumental violence than Facet 3 (lifestyle) and Facet 4 (behavioural) scores. Once again, the results of this study suggest that male youth with a higher level of psychopathic traits are more likely to use instrumental violence in the commission of violent crimes than nonpsychopathic youth.

The use of instrumental violence among male youth who possess greater levels of psychopathic traits has also been demonstrated among youth responsible for the most severe of criminal acts (i.e., homicide). For instance, among an almost exclusively male homicide offender sample in British Columbia, Agar (2009) found that increases in total PCL:YV scores were associated with increases in the likelihood of instrumentality.

Because the interpersonal and affective characteristics of psychopathy arguably distinguish psychopathy from comparatively less severe antisocial disorders (Hare, 1996, 2006; Rogstad & Rogers, 2008), Agar reasoned that youth who engage in instrumental homicide should score higher on the interpersonal and affective dimensions of psychopathy, specifically. As expected, the results indicated that only the interpersonal and affective components of psychopathy (i.e., Facet 1 and Facet 2) were significantly correlated with instrumentality, such that those scores increased as the instrumentality of the homicide increased.

The relationship between the interpersonal features of psychopathy (i.e., Facet 1) and instrumental violence has also recently been demonstrated among less severe juvenile offenders (i.e., Carpenter, 2010). Carpenter's examination of a mixed, although, once again, primarily male, sample of generally violent offenders, demonstrated that the interpersonal features of psychopathy were positively related to instrumental aggression which is consistent with other findings in the youth literature (e.g., Agar, 2009; Flight & Forth, 2007). In contrast to Agar, however, there was no relationship between the affective (i.e., Facet 2) component of psychopathy and instrumental aggression. This discrepancy in findings between youth who have committed homicide and those who have perpetrated less serious violent offences, suggests that there are likely important differences that exist between these two types of offenders in what contributes to their use of instrumental violence. Adding to the uncertainty, Carpenter speculated that this finding may be related to reduced power, rather than the absence of a relationship given that affective deficits would logically be related to the callous treatment of others.

Given the relationships between the interpersonal and affective traits of psychopathy and instrumental aggression demonstrated in the studies described above, it is not surprising that these traits have been used as a potential explanation for aggressive and antisocial behaviour in youth (e.g., Frick & White, 2008). In fact, Frick and White argue that some of the most severely violent and aggressive youth are distinguished by callous-unemotional (CU) traits. CU traits, as defined by Frick include; lack of guilt, lack of empathy, and callous use of others for one's own gain and are represented by Factor 1 of Hare's two-factor model, Factor 2 of Cooke and Michie's three-factor model, and Facet 2 of Hare's four-facet model of the PCL:YV. Indeed, high CU traits, particularly when combined with conduct problems, are not only related to increases in overall levels of aggression, but specifically to increases in instrumental aggression (Frick et al., 2003; Frick & White, 2008; Waschbusch & Willoughby, 2008). Frick and colleagues (Frick et al., 2000) have even suggested that it is the presence of these specific CU traits that differentiates individuals with high levels of psychopathic traits. Frick and White (2008) reviewed the extant literature on CU traits in youth and found that CU traits were stable across development, and that the presence of CU traits reliably distinguished a small group of aggressive and antisocial youth. Further, longitudinal studies have shown that the presence of CU traits in childhood and early adolescence predicts psychopathy in adulthood with clinic-referred youth, after controlling for other risk factors, such as parental psychopathology, parenting behaviours, and demographic factors (Burke, Loeber, & Lahey, 2007). The literature also suggests that heritability of antisocial behaviour is greater when present along with CU traits (Viding, Jones, Frick, Moffitt, & Plomin, 2008). Considering these findings, the

importance of evaluating both overall PCL scores, as well as factor scores when assessing psychopathy in youth is clear.

Findings from Vitacco et al. (2006), Jones et al. (2006), Flight and Forth (2007), and Carpenter (2010) have enhanced our knowledge of the underlying factor structure of psychopathy in youth, as well its particular relevance to our understanding of motivation for violence. A few methodological considerations, however, warranted additional enquiry. Specifically, as outlined above, Carpenter's (2010) study included a predominantly male sample, and both Vitacco et al. (2006) and Flight and Forth (2007) excluded female offenders despite arguments that psychopathy is a relevant disorder to consider in females (see in particular, Nicholls & Petrila, 2005). In addition, in evaluating the Flight and Forth (2007) study, the sample was relatively small, containing only 51 youth and violent offences were classified as either instrumental or reactive, and did not consider that some of these acts of aggression may contain elements of both types of violence. Through the inclusion of mixed motive categories (e.g., Woodworth & Porter's [2002] Instrumental-Reactive Continuum) the current thesis will be able to derive a more comprehensive view of the type of violence employed by these youth. Finally, it appears that Flight and Forth (2007) based their instrumentality ratings of violence both on official file information and self-report. However, the literature has suggested that psychopathic offenders in particular may exaggerate the level of reactivity involved in their offences (e.g., Porter & Woodworth, 2007), making it unclear if Flight and Forth's (2007) results are the most accurate reflection of the actual instrumentality of the offense. By using only official file information to determine instrumentality, bias

associated with self-report will be avoided, and arguably lead to a more refined delineation of motivation for violence.

1.4   Goals of the Current Study

The current study was designed to extend the existing literature on youth psychopathy and violence through the examination of female offenders. More specifically, I endeavoured to evaluate the relationship between the best-fitting of the three main models of the PCL:YV (Forth et al., 2003) and instrumental aggression among a large sample of female adolescents with a history of violent offending.

The present thesis aimed to accomplish three main objectives. First, I sought to evaluate the construct validity of the two-factor, three-factor, and four-facet models of the PCL:YV. This was necessary since only two studies have looked at the factor structure of the PCL:YV with a female adolescent sample (e.g., Jones et al., 2006; Sevecke et al., 2009). Jones et al.'s (2006) analysis was exploratory and did not test all three models among their American sample, and although all three models were tested by Sevecke et al. (2009), their German sample may not be applicable to Canadian female youth offenders. Further, an understanding of a measure's underlying factor structure is necessary for proper interpretation, and especially critical if dimensions of a multidimensional construct are differentially related to external variables such as violence (Reise, 1999). Following from this first objective, I also wanted to determine whether psychopathic traits were related to the use of instrumental aggression among a sample of generally violent female youth. To gain a more refined understanding of the dimensions of psychopathy that may be related to instrumental aggression, this thesis examined not only the PCL:YV total scores, but also the factor and facet scores. Given

the relative recency of the PCL:YV's development and the lack of studies that have examined instrumental aggression among samples that have included females, these analyses should assist researchers in furthering their understanding of adolescent, in particular *female*, psychopathy and will better help inform our understanding of motivation. Finally, my third objective was to examine how the best-fitting of the three primary PCL:YV factor models was related to instrumental aggression.

The design of the present study involves a number of methodological considerations, such as the inclusion of one of the largest samples of adolescent female offenders that the author is aware of from the published literature. This is the first North American study to simultaneously examine all three of the primary factor models among female adolescent offenders. The large size of this sample allows for rigorous examination of psychopathy and instrumental aggression among females with a history of violence; no other study that has specifically tested the relationship between psychopathy and instrumental aggression, among either male or female youth offenders, has contained a sample of this size. In fact, the one female study to examine this relationship included a sample of only 41 female youth. Further, the current study utilized mixed motive categories to assess instrumentality, and all instrumentality ratings were based on official file information rather than offender self-reports. Finally, through the inclusion of external correlates such as aggression in psychopathy research, we will be able to obtain a more comprehensive understanding of the construct of psychopathy. Specifically, we will be able to identify which psychopathic traits in particular may influence the motivations for violence perpetrated by female youth.

1.4.1 Hypotheses

The current thesis had three specific hypotheses. First, based on the relatively limited existing information on the factor structure of female adult (Jackson et al., 2002; Warren et al., 2003; Weizmann-Henelius et al., 2010) and female youth (i.e., Jones et al., 2006; Sevecke et al., 2009) psychopathy, I predicted that Cooke and Michie's (2001) three-factor model would provide the best fit of the current sample's female youth data. My second prediction was that female psychopaths would differ from nonpsychopaths in terms of the type of violence (instrumental versus reactive) they commit. Based on previous research among adult (e.g., Woodworth & Porter, 2002) and youth (e.g., Agar, 2010, Carpenter, 2010; Flight & Forth, 2007) samples composed almost exclusively of males, female youths scoring high on the PCL:YV were expected to also use more instrumental violence in their overall commission of violent offences than youths scoring low on the PCL:YV. I believed that these results would be particularly pronounced in youth who have scored high on the interpersonal and affective facets of psychopathy. Third, despite my belief that the three-factor model would provide the best fit among this sample of female adolescents, following from research by Vitacco et al. (2006), I predicted that the four-facet model would account for more variance in instrumental aggression as compared to the three-factor model.

2   Method

2.1   Sample

The current sample was composed of female adolescents referred to Youth Forensic Psychiatric Services (YFPS) in British Columbia. YFPS provides assessment and treatment services to justice-involved youth, aged 12-17 at the time of their offence. Assessments are conducted by a multidisciplinary team, including, psychologists, psychiatrists, psychiatric social workers, and psychiatric nurses. Under Tri-Council guidelines, permission for file review was granted by the Behavioural Research Ethics Board of the University of British Columbia, the Program Evaluation and Research (PER) Ethics Board of YFPS (see Appendix C), and by the Senior Executive Director, Provincial Services, Ministry of Children and Family Development (see Appendix D). As part of the assessment process at YFPS, youths provided consent to allow their information to be used for any and all research projects approved by the PER Ethics Board. As a result of subsequent approvals, available closed files of female youth with a history of violent offending were reviewed.

The YFPS PER department identified a large number of female youth files from two previous studies conducted by the PER department and a third study which they are currently conducting. The final sample consisted of 145 female youth offenders who were between the ages of 12 to 18 at the time of their index offense ($M = 15.5$, $SD = 1.3$). The vast majority of files were quite detailed and included information from a variety of sources including police records (e.g., previous charges and convictions, police circumstances, detailed narratives, witness and offender statements), court

records, school records, medical records, psychiatric and psychological assessments, psychosocial histories, social services records, and reports from probation officers.

2.2   Measures

2.2.1   Psychopathy Checklist: Youth Version

The PCL:YV was used to assess the presence of psychopathic traits in the sample. It is a 20-item measure in which each item is scored on a three-point scale (0 = item does not apply, 1 = item applies somewhat, 2 = item definitely applies) based on the symptom`s pervasiveness, severity, and chronicity. Total scores range from 0 to 40 (two-factor and four-facet models) and 0 to 26 (three-factor model) and can be prorated in cases where five or fewer items are omitted due to a lack of information. Higher scores are indicative of a greater number and/or severity of psychopathic characteristics. Unlike its adult counterpart, no diagnostic cut score is provided, however, for research purposes, 30 is the suggested cut score to indicate the presence of psychopathic traits in youth when using the two-factor and four-facet model. A cut off score for the three-factor model has not yet been established.

Evidence is present for an overall lower prevalence rate of psychopathy in female offenders than in male offenders (Jackson et al., 2002; Salekin, Rogers, Ustad, & Sewell, 1998). This fact often leads to a debate on lowering the cut score for female offenders. Some have found evidence that a lower PCL – R cut score ($\geq$ 25 rather than $\geq$ 30) discriminates well between psychopaths and non-psychopaths (Jackson et al., 2002). The PCL:YV's interrater reliability (ICC of .90-.96), internal consistency (α = .85-

.94), and test-retest reliability (ICC of .66) have all been reported to be adequate (Forth et al., 2003).

2.2.2 Aggression Rating Form

The Aggression Rating Form (ARF; as described in Vitacco et al., 2006) is a relatively new violence coding scheme that was specifically designed to assess the continuum between instrumental and reactive aggression in juvenile offenders. Based on the work of Cornell et al. (1996), the ARF assesses five distinct behavioural domains including: (a) planning or preparation before the aggression, (b) goal directed – the act helped obtain a specific and identifiable goal, (c) the aggressive behaviour was unprovoked by the victim, (d) lack of anger during aggression, and (e) the victim of the aggression was a stranger. Each item is coded on the following 5-point Likert-type scale: (1) None: no indications of this characteristic are present in any of the known acts, (2) Seldom: some incidents include the characteristic, but it is not present in the vast majority of cases, (3) Mixed: the characteristic is present in some aggressions but not others, (4) Most: the characteristic is present in most aggressions and is only absent in rare exceptions, and (5) Always: The characteristic is documented in every known case of aggression. Total scores range from 5 to 25, with higher scores indicating more instrumental aggression. The construct validity of the ARF has previously been assessed among a male adolescent sample (i.e., Vitacco et al., 2006). It demonstrated good fit for a single uni-dimensional factor model and three items were strongly related to the instrumental aggression factor: goal directedness, unprovoked by victim, and lack of anger during aggression. Further information on how the ARF was scored in the current study is available in Appendix E**.**

2.2.3   Instrumental-Reactive Coding Scheme

Woodworth and Porter's (2002) instrumental-reactive coding scheme has been used in multiple studies with violent adult offenders (e.g., Meloy, 2006; Porter & Woodworth, 2007; Woodworth & Porter, 2002) and more recently with violent youth offender populations (Agar, 2009; Carpenter, 2010). Further, other experts in the field suggest this coding scheme is particularly relevant and useful in applied forensic settings (Meloy, 2006). For example, it has been endorsed as a promising tool for facilitating violent crime investigations. Using this coding scheme has the benefit of ensuring comparability of our results to those found in the aforementioned Canadian studies.

Woodworth and Porter's instrumental-reactive coding scheme reflects Bushman and Anderson's (2001) contention that many acts of violence have multiple motives. Expanding on previous dichotomous models, four separate subtypes are considered: (a) instrumental, (b) instrumental/reactive, (c) reactive/instrumental, and (d) reactive. For an offense to be classified as instrumental, there had to have been evidence of some planning, and a clear goal or gain (e.g., monetary gain, revenge or retribution for past events). In contrast, for an offense to be classified as reactive, there had to have been evidence of anger on the part of the offender, evidence of provocation, and the offense had to have been in response to interpersonal conflict without a cooling off period. Index offenses classified as instrumental/reactive were primarily instrumental as described above, but did have evidence of reactive behaviour. Index offenses categorized as reactive/instrumental were primarily reactive as previously described, but

did have evidence of instrumental behaviour. See Appendix E for detailed descriptions of these categories and coding instructions.

2.2.4   Demographics, Offender History, and Offense Characteristics

Additional information including basic demographics (i.e., date of birth, ethnicity), offender history (i.e., age at first contact with police, age at first charged offense), and offence characteristics (e.g., victim gender, victim age, victim-offender relationship, weapon use and type, substance use at the time of the offence, and severity of violence) was also coded. For further descriptions of the manner in which variables were coded, see Appendix E.

2.3   Procedure

All files were coded on the PCL:YV by the primary researcher at YFPS in Kelowna, British Columbia, and the PER research team in Burnaby, British Columbia. The primary researcher's coding scheme, which includes the ARF and Woodworth and Porter's (2002) instrumental-reactive coding scheme (see Appendix E), was completed by the primary researcher and a secondary coder who was a volunteer undergraduate honours student at UBC Okanagan in Kelowna, British Columbia.

The PCL:YV was completed based on file review by the author and by YFPS research assistants, all of whom were trained according to YFPS standards of administration. All relevant information from the clients' files was used up until the time of the assessment for the index offence, which typically occurred within a few months of the offence. If no assessment was available, information up until the time of the index offence was utilized to make PCL:YV ratings. Structured interviews were not possible as all of the files used in the current study were closed, and the clients were no longer

receiving services from YFPS. Although the PCL:YV is designed to be completed based on an extensive file review, and a semi-structured interview, scores from file review only are acceptable when conducting an archival study (Forth, 2005) and there is considerable evidence to support its validity based on file review alone (Forth et al., 2003). Further, research among adults (e.g., Bolt et al., 2004; Grann, Langstroem, Tengstroem, & Stalenheim, 1998; Wong, 1988) has consistently shown that assessments based solely on the offender's file information are highly similar to ratings based on both file review and an interview and are appropriate provided that there is sufficient file information. As the psychometric properties of the PCL:YV so closely resemble the PCL – R, we expected psychopathy to be reliably measured on a file-only basis. The primary rater (i.e., the author) was blind to the instrumentality coding while completing the PCL:YV.

The author was trained in using Woodworth and Porter's (2002) coding scheme by Dr. Michael Woodworth. She then trained the secondary rater on how to use this coding scheme as well as the ARF. Both the primary researcher and the volunteer were kept blind to the offenders' PCL:YV scores during the coding process.

Analyses were completed using the Predictive Analytics SoftWare (PASW) version 18, using a Type I error rate of .05. Using the PASW add-on, Amos, confirmatory factor analysis (CFA) was employed to examine the construct validity of the two-factor, three-factor, and four-facet models. To examine how the best-fitting PCL:YV factor model is related to instrumental aggression, structural equation modeling (SEM) was the method selected. SEM provides a comprehensive and flexible approach to data analysis (Hoyle & Smith, 1994). SEM improves statistical estimation by

accounting for measurement error in the estimation process and has the ability to

incorporate latent (e.g., unobserved) variables in the analysis.

3   Results

3.1   Coding Reliability

Inter-rater reliability coding was conducted on 15% of the sample for PCL:YV ratings. The files that were double-coded were randomly selected from the sample. Absolute agreement internal consistency correlations were computed for total (α = .90), Factor 1 (α = .79), Factor 2 (α = .91), Facet 1 (α = .79), Facet 2 (α = .84), Facet 3 (α = .81) and Facet 4 (α = .88) psychopathy scores ($ps \leq$ .001). Cohen's Kappa was calculated to determine consistency among raters' absolute agreement in the classification of offenders as either high (score above 25) or low (score of 24 or below) psychopathy based on the cut score of 25. This value indicated almost perfect agreement between raters, k = .81, $p <$ .001. Cohen's Kappa was also calculated to determine consistency among raters in the classification of offenders based on the cut score of 30. This value indicated moderate agreement between the raters, k = .53, p = .002. Further, Cohen's Kappa was calculated to determine consistency among raters in classifying offenders categorically (low: score of 0-19, moderate: score of 20-29, high: score of 30-40). The value obtained indicated substantial agreement between raters, k = .61, $p <$ .001.

Fifteen percent of the sample was also double-coded to verify that the instrumentality variables were coded reliability. Absolute agreement internal consistency correlations were calculated for the continuous instrumentality variable, α = .89, $p <$ .001. Absolute internal consistency correlations were also calculated for each item and were as follows: (1) planning (α = .64), (2) goal directed (α = .68), (3) unprovoked (α = .61), (4) lack of anger (α = .97), and (5) stranger (α = .78), ($ps \leq$ .003).

Cohen's Kappa was also computed for the absolute agreement with the four-category instrumentality variable, $k = .66$, $p < .001$, indicating substantial agreement between raters, as well as the dichotomized instrumentality variable, $k = .91$, $p < .001$, which indicates near perfect agreement between raters.

3.2   Descriptive Statistics

3.2.1 Offender Characteristics

Offender age at the time of the violent index offense ranged from 12.2 to 17.9 years ($M = 15.5$, $SD = 1.3$). Two thirds (66.2%) of the sample were Non-aboriginal, 31.5% of the sample were Aboriginal, and ethnicitcy was not specified for 2.3% of the sample.

Age at first contact with police was available for 63% of the sample and ranged from 10 to 17.8 years ($M = 13.7$, $SD = 1.6$). Age at first charged offense ranged from 12 to 17.9 years ($M = 14.6$, $SD = 1.4$) and was available for 88% of the sample.

3.2.2 Victim Characteristics

In nearly three-quarters of the offenses, the victims were female (72.3%), 13.8% of victims were male, and in 9.2% of the offenses, there was both a male and female victim. Victim gender was unknown for 4.6% of cases. Close to half of the victims were adolescents (48.5%), followed closely by adults (40.8%); 6.2% involved mixed age groups of victims and there were few (1.5%) child victims. The age of the victim was unable to be determined in 3.1% of cases.

Regarding relationship to the offender, there was an equal percentage of both stranger (26.2%) and specific relationship (e.g., teacher, babysitter, etc.; 26.2%) victims.

This was followed by acquaintance victims (20.0%), victims in a close relationship (e.g., friend, relative, dating partner, etc.; 11.5%) with the offender and victims who were very close to the offender (e.g., immediate family member, romantic partner, etc.; 10.8%). The victims' relationship with the offender could not be determined in 5.4% of cases. For a graphical display of the relationship between the victim and offender, refer to Figure 1.
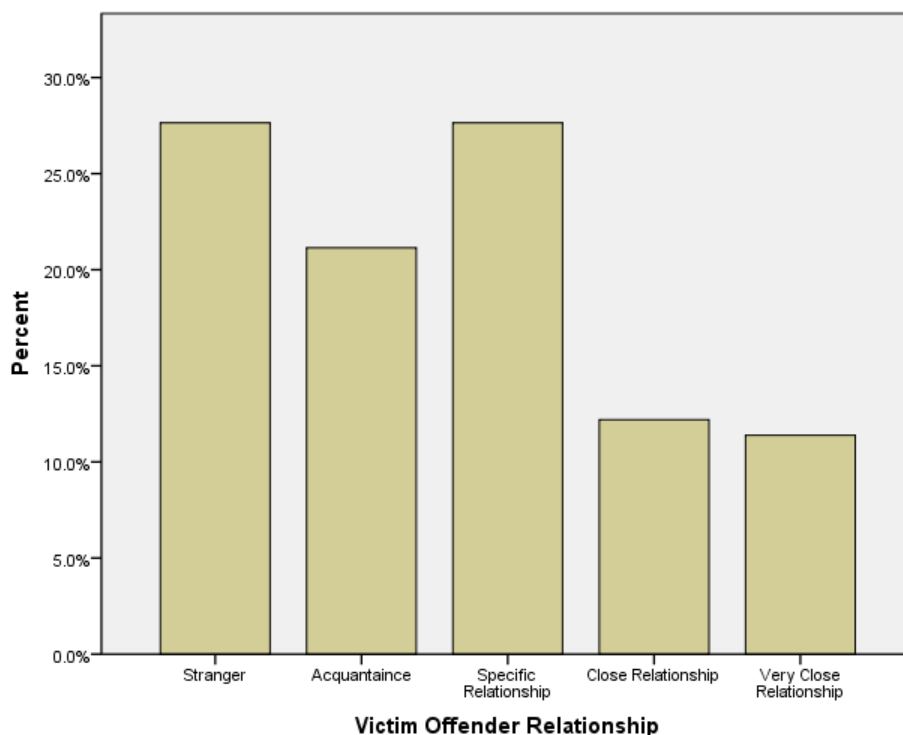
Figure 1. Percentage of cases by victim-offender relationship.

3.2.3 Index Offense Characteristics

Verbal threats were used in 40.8% of offenses. Weapons were used in 26.2% of offenses, used to threaten the victim in 3.8% of offenses, and were in the offender's possession but not used in 3.1%. There were no weapons used in 63.8% of offenses.

When a weapon was involved, an object (e.g., bottle of alcohol) was the most common (48.9%) followed by a knife (38.3%); a chemical spray was the least common (4.3%), and the type of weapon was unknown in 8.5% of cases. Weapons were obtained opportunistically in 42.6% of offenses involving a weapon, and were obtained by choice, prior to the offense in 38.3% of offenses. It was unclear how the weapon was obtained in 19.1% of offenses that involved a weapon.

Regarding violence severity, over half of the offenses (55.4%) involved physical violence with no weapon use, 26.9% involved physical violence with weapon use, and 13.1% involved no physical violence and no weapon use. Injuries were most often minor (57.7%; e.g., bruises, minor medical treatment), 2.3% of victims were severely injured (e.g., lasting impairment or life-threatening injury), 7.7% of victims were seriously injured (e.g., required substantial hospital treatment), 12.3% were assaulted without injury, and in 13.8% of offenses, no assault occurred (e.g., victim was threatened with a weapon). In one offense (1.0%), the injuries suffered by the victim resulted in his/her death. For a graphical display of violence severity based on victim injury, refer to Figure 2.
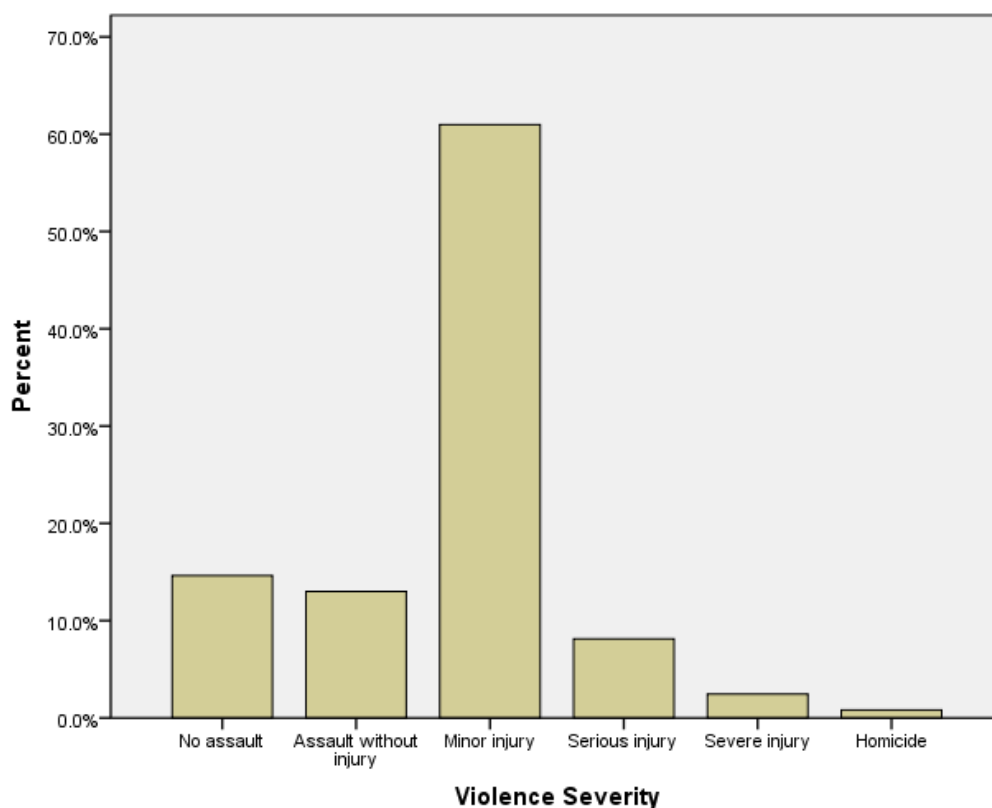
Figure 2. Percentage of cases by severity of violence based on victim injury.

The offenses occurred most often in public places (53.8%), followed by the youth's home (18.5%), another residence (12.3%), and least often at school or work (8.5%). A small proportion of offenses (1.5%) occurred in mixed (i.e., multiple) locations.

In half of the offenses (50.8%), there was no alcohol or drug involvement on the part of the offender. The percent of offenders who were severely intoxicated (e.g., very impaired) at the time of the offense was 6.9%, 14.6% were intoxicated, 6.2% were mildly intoxicated and 3.1% were not intoxicated. The use of drugs or alcohol could not be determined in 18.5% of cases.

3.3   Primary Analyses

3.3.1 PCL:YV Factor Structure

Confirmatory factor analysis (CFA) was used to test the three primary factor models since it permits quantification of a factor models' fit within a particular sample. Although the distribution of PCL:YV total scores were approximately normally distributed, $D(142) = .073$, $p = .06$, due to the ordinal nature of the individual items that compose the PCL:YV, the items cannot have normal distributions. Consequently, the impact of nonnormality was assessed through examination of the fit indices for each of the models using the Generalized Least Squares (GLS) method. The GLS method is suitable for nonnormal data (Hu, Bentler & Kano, 1992) and is one of two methods available in Amos that are recommended for nonnormal data. The second available estimation method available in Amos is the Asymptotically Distribution Free (ADF) estimator but it has been shown to perform poorly with sample sizes under 2,500 (Hu et al., 1992) and consequently was not used in this study. A requirement for the GLS estimator to proceed is complete data (i.e., no missing values) so items that had missing data were assigned values using regression imputation in Amos. This is a sophisticated method for estimating missing values and is advantageous in that it is more objective than the researchers guess but not as blind as simply inserting the grand mean (i.e., mean substitution; Tabachnick & Fidell, 2007).

When evaluating CFA results, Hu and Bentler (1999) have shown that two model fit indices, one relative and one absolute, are sufficient to determine the goodness of fit of a model. Earlier, Kline (1998) suggested reporting the chi-square (X^2) goodness-of-fit test, with associated degrees of freedom and p value, as well as an index that notes the overall proportion of explained variance (e.g., Comparative Fit Index; CFI) and a similar

index that adjusts for model complexity (e.g., the Tucker-Lewis Index; TLI). The p value

of the X^2 test should be nonsignificant indicating that the model adequately accounts for

the data. Similar to Kline (1998), Hu and Bentler (1999) have also demonstrated that the

CFI and the TLI are good measures of relative fit. The CFI and TLI are incremental fit

measures comparing the specified model with the worst case scenario, which is an

independence or null model; the TLI tends to be more adversely affected by the

estimation of additional parameters that do not improve model fit. In addition, the

RMSEA is the preferred index for gauging absolute goodness of fit, as well as model

misspecification (Hu & Bentler, 1999). A CFI and TLI ≥ .95 and RMSEA ≤ .06 indicate

excellent model fit, whereas a CFI and TLI ≥ .90 and RMSEA ≤ .10 indicate *adequate*

fit. Based on these authors' recommendations, the chi-square, CFI, TLI, and RMSEA

were examined to determine the appropriateness of each model. In Table 1, CFA

results are presented for Hare's (2003) two-factor model, Cooke and Michie's (2001)

three-factor model, and Hare's (2003) four-facet model. In Figure 3, correlations

between the three-factor model factors and PCL:YV items are displayed. See Appendix

A for a list of the PCL:YV items.

Table 1

Confirmatory factor analysis model fit statistics.

Model	
Two-factor	
χ^2	141.03 (118)
CFI	.68
TLI	.64
RMSEA	**.04**
Three-factor	
χ^2	68.19 (62)
CFI	**.91**
TLI	.89
RMSEA	**.03**
Four-facet	
χ^2	147.63 (129)
CFI	.79
TLI	.75
RMSEA	**.03**

Note. $n = 145$. Acceptable fit index values are shown in boldface type. * $p = .05$. Values in parentheses are the degrees of freedom for the model.
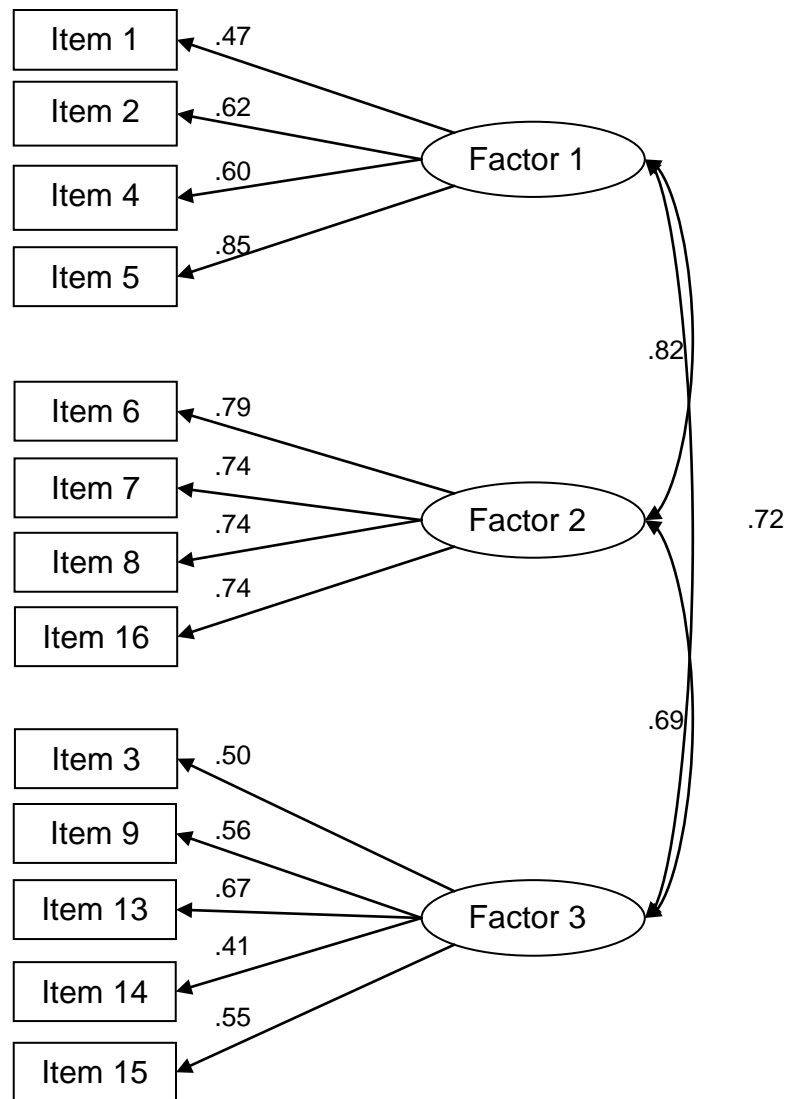
Figure 3. Correlations between the three-factor model factors and PCL:YV items.

3.3.2 ARF Factor Structure

The construct validity of the five-item ARF measure was evaluated to determine which items best represent the construct of instrumental aggression in adolescent females. Prior to running CFA, the normality of the ARF was assessed. Both the skewness (.376) and kurtosis (-.498) values were examined, as well as the Q-Q plot, revealing that ARF scores are approximately normally distributed. Similar to the PCL:YV, due to nonnormality at the item-level, the GLS estimator was employed. Missing values were imputed prior to running this analysis and imputed values were rounded to the nearest integer.

Although the fit indices approached acceptable cutoffs, the ARF one-factor model did not met requirements for adequate model fit; χ^2 (5, $N = 130$) = 9.49, $p = .09$, CFI = .89, TLI = .78, RMSEA = .08. Two items were strongly related to the instrumental aggression factor: goal directed (.79), and planning or preparation (.83). In contrast, lack of anger (.47) showed a moderate correlation, unprovoked (.26) showed a weak correlation, and the correlation between stranger victim (.11) and instrumental aggression was negligible.

3.3.3 Principal Variables of Interest

3.3.3.1 *Psychopathy.* Psychopathy was assessed for 145 offenders. Scores ranged from 4.20 to 34.00. Table 2 provides the PCL:YV mean, standard deviation, and its correlation with the ARF. The vast majority of offenders (93.0%) scored below 30, 7.0% scored 30 or higher. Using a cut score of 25, 76.8% of offenders were classified as non-psychopaths, while 23.2% were classified as psychopaths (score ≥ 25). When psychopathy was assessed categorically, 54.2% of offenders scored in the low range

(1-19), 38.7% scored in the moderate range (20-29), and 7.0% scored in the high range (30-40).

Table 2

Means, standard deviations, and correlation between the PCL:YV and ARF.

Variables	1.	2.
1. PCL:YV	---	---
2. ARF	.09	---
M	18.83	13.48
SD	7.04	5.32

Note. * *p* ≤ .05.

3.3.3.2 *Instrumentality.* The continuous instrumentality variable was coded for 130 offenders. Scores ranged from 5 to 25. Table 2 displays the ARF's mean, standard deviation and its correlation with the PCL:YV.

The categorical instrumentality variable was assessed for 122 violent index offences and 54 violent historical offences. Of the 122 index offenses, 44.3% were purely reactive, 18.9% were reactive/instrumental, 19.7% were instrumental/reactive, and 17.2% were purely instrumental (see Figure 4). Of the 54 historical offences, 48.1% were purely reactive, 22.2% were reactive/instrumental, 18.5% were instrumental/reactive, and 11.1% were purely instrumental.

Two additional dichotomous instrumentality variables were created for the index offence variable by collapsing the purely reactive and reactive/instrumental categories to create a primarily reactive category and by collapsing the purely instrumental and instrumental/reactive category to form a primarily instrumental category: 63.1% were considered primarily reactive, whereas 36.9% were primarily instrumental offenses. A

nonparametric chi-square revealed that there was a significant difference in the frequency of primarily reactive and primarily instrumental offenses, χ^2 (1, N = 122) = 8.39, p = .004.
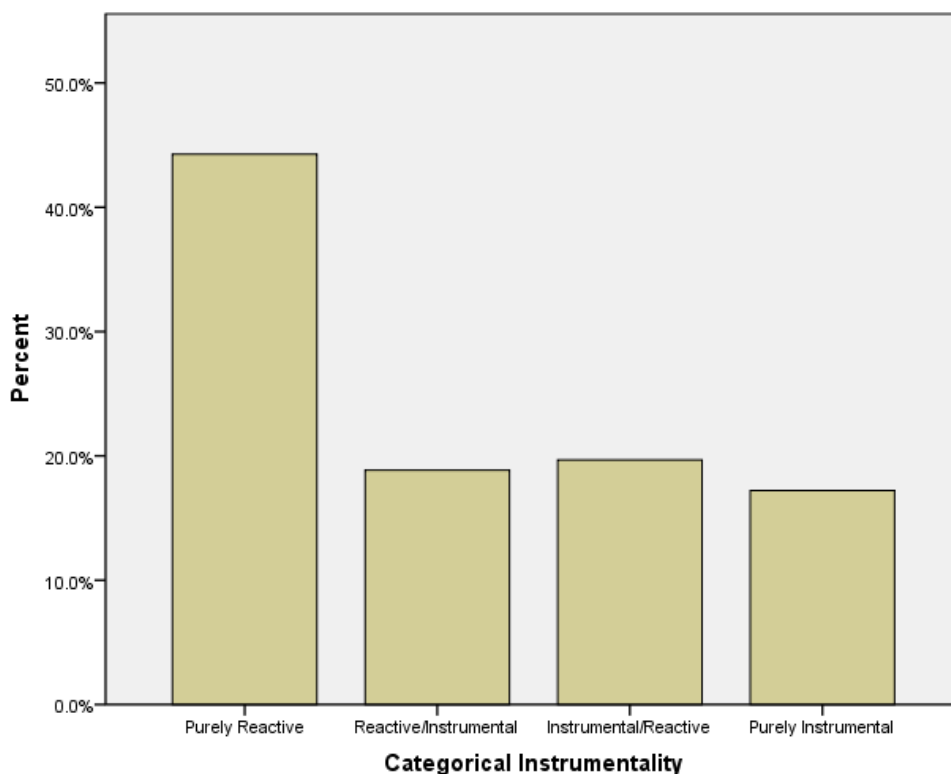
Figure 4. Percentage of cases by categorical instrumentality variable.

Offenses containing at least some instrumentality were also coded for their primary motivation. Among violent index offences, 39.7% were for revenge or retribution, 30.9% were for monetary gain, 5.9% were due to jealousy over a male, and an additional 5.9% were to obtain drugs or alcohol. Motives that did not clearly fit into one of these categories were coded as other. This designation was used in 17.6% of offenses and included motives such as to become a member of a gang or to gain entry into a former residence to obtain one's own belongings (see Figure 5). Among violent historical

offences, 28.6% were for revenge or retribution, 25.0% were for monetary gain, 14.3% were due to jealousy over a male, and 3.6% were to obtain drugs or alcohol. Among historical offences, twenty-eight point six percent of offences were classified as having a motive not met under the above categories.
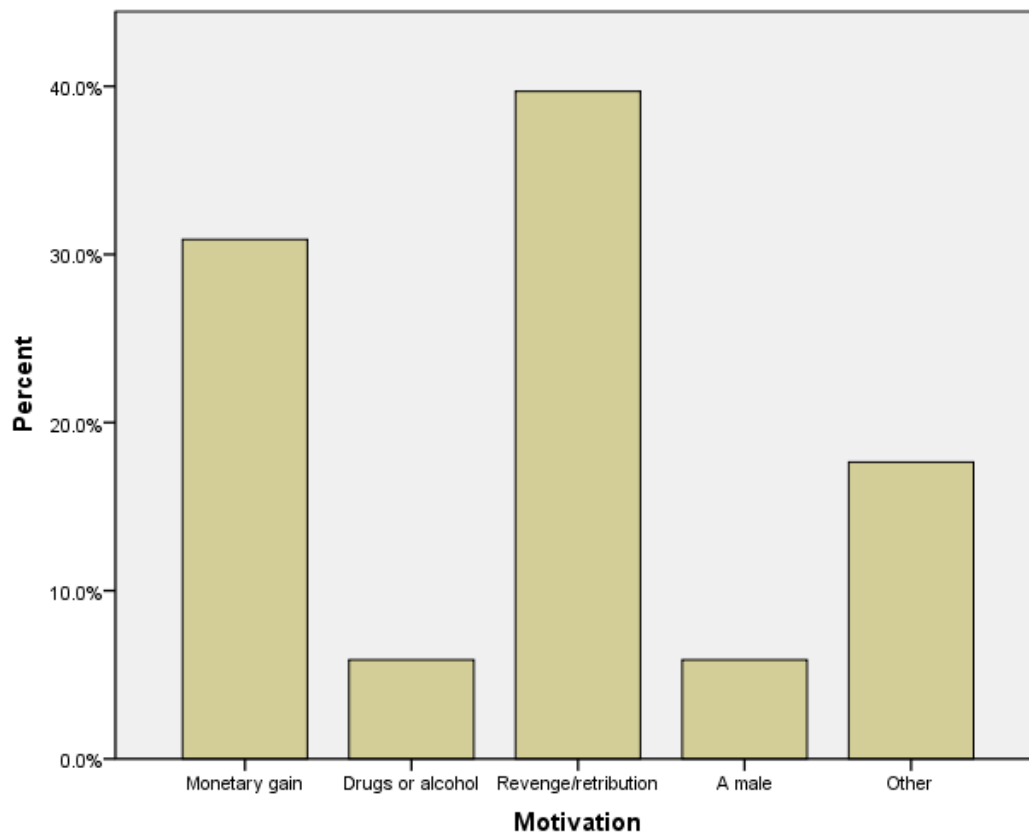
Figure 5. Percentage of cases by motivation for violence for the index offense.

3.3.4 Psychopathy and Instrumentality

The relation between the continuous instrumentality variable and continuous psychopathy was not significant, r (120) = .09, p = .35.

Using the dichotomous psychopathy (score ≥ 25) variable, it was found that, on average, although offenders who were classified as psychopaths (score ≥ 25) scored higher on the continuous instrumentality variable (M = 14.04, SE = 1.15) than those who were classified as nonpsychopaths (M = 13.22, SE = 0.53), this difference was not significant t (117) = -.71, p = .24.

Using the dichotomous psychopathy (score ≥ 30) variable, it was found that, on average, offenders who were classified as psychopaths (score ≥ 30) scored lower on the continuous instrumentality variable (M = 12.75, SE = 1.78) than those who were classified as nonpsychopaths (M = 13.46, SE = 0.51); however, this difference was not significant t (117) = .36, p = .36.

A one-way analysis of variance (ANOVA) was conducted using the categorical psychopathy variable to determine if continuous instrumentality scores increase with psychopathy. The ANOVA was not significant, F (2, 116) = 1.37, p = .26 with a mean square (MS) for error of 27.92.

Using the dichotomous instrumentality variable, it was found that, on average, offenders who were classified as primarily reactive scored slightly higher on the continuous psychopathy variable (M = 18.80, SE = 0.81) than those who were classified as primarily instrumental (M = 18.65, SE = 1.09); however, this difference was not significant t (118) = .11, p = .46.

The association between the dichotomous instrumentality and dichotomous psychopathy (score ≥ 25) variables was not significant, χ^2 (1) = .002, p = .96. The association between the dichotomous instrumentality and dichotomous psychopathy (score ≥ 30) variables was also not significant, χ^2 (1) = .50, p = .48. Further, the

association between the dichotomous instrumentality and categorical psychopathy variables was not significant, $\chi^2 (2) = 1.39$, $p = .50$.

Using the categorical instrumentality variable, a one-way ANOVA was conducted to determine if continuous psychopathy scores increase with instrumentality. The ANOVA was not significant, $F(3, 116) = 1.05$, $p = .37$ with a mean square (MS) for error of 50.46.

The association between the categorical instrumentality and dichotomous psychopathy (score $\geq$ 25) variables was not significant, $\chi^2 (3) = .17$, $p = .98$. The association between the categorical instrumentality and dichotomous psychopathy (score $\geq$ 30) variables was also not significant, $\chi^2 (3) = 1.92$, $p = .59$. Further, the association between the categorical instrumentality and categorical psychopathy variables was not significant, $\chi^2 (6) = 4.66$, $p = .59$.

Two hierarchical multiple regressions were conducted to determine the contributions of each of the factors and facets of the PCL:YV to the prediction of instrumentality. Based on previous research (e.g., Agar, 2009, Carpenter, 2010; Flight & Forth, 2007; Woodworth & Porter, 2002), I expected Factor 1 and Facets 1 and 2 to be strong predictors of instrumentality. Therefore, in the first multiple regression analysis, Factor 1 was entered in block one, while Factor 2 was entered into the model in block two. The results of this regression analysis indicated Factor 1 did not account for a significant proportion of the instrumentality, $R^2 = .01$, $R^2_{adj} = .002$, $F(1,118) = 1.19$, $p = .28$, nor did Factor 2, $R^2 = .01$, $R^2_{adj} = -.004$, $F(2,117) = .79$, $p = .46$.

Similarly, the regression analysis results comparing the four facets indicated Facet 1 and 2 did not account for a significant proportion of instrumentality, $R^2 = .01$, $R^2_{adj} =$

.002, $F(1, 99) = 1.17$, $p = .28$, and $R^2 = .01$, $R^2_{adj} = -.01$, $F(2, 98) = .58$, $p = .56$,

respectively. Further, all subsequent blocks were statistically nonsignificant indicating

that Facet 3, $R^2 = .02$, $R^2_{adj} = -.01$, $F(3, 97) = .53$, $p = .67$, and Facet 4, $R^2 = .04$, $R^2_{adj} =$

-.004, $F(4, 96) = .90$, $p = .47$, scores were not significantly related to the instrumentality

of the offense.

3.3.4.1 *PCL:YV Factor Model and its Association with Instrumental Aggression.*

Since the three-factor model was determined to be the best-fitting of all three models

using CFA, this model was employed to examine the relationship between psychopathy

and instrumental aggression (as measured by the ARF) using SEM. The three-factor

model resulted in poor model fit, X^2 (130, N = 130) = 141.25, $p = .24$, CFI = .87, TLI =

.84, RMSEA = .03. Neither the interpersonal or affective factors were significantly

related to the use of instrumentality. To determine the amount of variance accounted for

by the four-facet model, this model was also tested using SEM. The four-facet model

also resulted in poor model fit, X^2 (222, N = 130) = 233.12, $p = .29$, CFI = .87, TLI = .86,

RMSEA = .02. In comparison to the three-factor model, which accounted for 7.0% of the

variance in instrumental aggression, the four-facet model accounted for 5.0% of the

variance in instrumental aggression. Similar to the three-factor model, neither the

interpersonal or affective factors were significantly related to the use of instrumentality.

3.4   Secondary Analyses

3.4.1 Analyses Based on Bootstrapped Data

Bootstrapping is a general approach to statistical inference based not on

assumptions of normality but on empirical samples by resampling with replacement

from the original dataset. In other words, the original sample serves as the population

for the purposes of bootstrap sampling. CFA and SEM analyses were reconducted

using the bootstrapped dataset.

3.4.1.1 *PCL:YV Factor Structure.* To determine which of the three primary factor

models was the most appropriate model for use with female youth violent offenders,

bootstrapping for model comparison was employed. The Linhart and Zucchini (1986)

bootstrap approach for model selection was used which is summarized as follows: (1)

generate several bootstrap samples by sampling with replacement from the original

sample, (2) fit every competing model to every bootstrap sample. After each analysis,

calculate the discrepancy between implied moments obtained from the bootstrap

sample and the moments of the bootstrap population, (3) calculate the average (across

bootstrap samples) of the discrepancies for each model from the previous step, (4)

choose the model whose average discrepancy is smallest. Table 3 provides the mean

discrepancies for each of the three models tested. Results obtained confirmed that the

three-factor model is the best model which is consistent with the results obtained using

the GLS estimator.

Table 3

Mean discrepancy and standard errors for the three competing PCL:YV factor models.

Model	Mean Discrepancy
2-factor	221.29 (.84)
3-factor	**131.32 (.81)**
4-facet	240.73 (.88)

Note. Value in boldface type indicates the best fitting model. Values in parentheses are the standard errors.

3.4.1.2 *ARF Factor Structure.* Using the Bollen-Stine Bootstrap and associated test of overall model fit (Bollen-Stine p-value; Bollen & Stine, 1993), the ARF fit indices approached acceptable cutoffs, but did not met requirements for adequate model fit; χ^2 (5, N = 130) = 9.49, p = .12, CFI = .89, TLI = .78, RMSEA = .08, which was consistent with previously reported results using the GLS estimator. Also consistent with prior analyses, two items were strongly related to the instrumental aggression factor: goal directed (.79), and planning or preparation (.83). In contrast, lack of anger (.47) showed a moderate correlation, unprovoked (.26) showed a weak correlation, and the correlation between stranger

3.4.1.3 *PCL:YV Factor Model and its Association with Instrumental Aggression.* The relationship between psychopathy and instrumental aggression was also examined using the Bollen-Stine bootstrap and associated test of model fit. Using SEM, the three-factor model resulted in excellent model fit, X^2 (130, N = 130) = 155.76, *p* = .06, CFI = .95, TLI = .95, RMSEA = .04, however, neither the interpersonal or affective factors were significantly related to the use of instrumentality. Further, only 5% of the variance

in instrumental aggression was accounted for by the three-factor model. To determine the amount of variance accounted for by the four-facet model, this model was also tested using SEM. The four-facet model resulted in adequate model fit, X^2 (222, N = 130) = 284.16, p = .003, CFI = .91, TLI = .90, RMSEA = .05. This model, like the three-factor model, accounted for only 5.0% of the variance in instrumental aggression. Similar to the three-factor model, neither the interpersonal or affective factors were significantly related to the use of instrumentality. These results were once again consistent with the results obtained using the GLS estimator.

3.4.2 Ethnicity

An evaluation of whether there were any meaningful differences in the main variables of interest in consideration of ethnicity was conducted.

3.4.2.1 *Psychopathy.* A point biserial correlation revealed no significant differences between continuous psychopathy scores across ethnicity r (127) = -.01, p =.93. A chi-square analysis revealed no significant difference between dichotomous psychopathy (score ≥ 25) across ethnicity, χ^2 (2) = 2.65, p = .27 and dichotomous psychopathy (score ≥ 30) across ethnicity, χ^2 (2) = 1.76, p = .42. Further, there was no significant difference between categorical psychopathy scores across ethnicity, χ^2 (4) = 2.44, p = .66.

3.4.2.2 *Instrumentality.* A one-way ANOVA revealed no significant difference between continuous instrumentality scores across ethnicity, F (2, 125) = 2.27, p = .46 with a MS for error of 32.62. Chi-square analyses revealed no significant difference between dichotomous, χ^2 (2) = 3.52, p = .17, and categorical instrumentality, χ^2 (6) =

4.96, p = .55, across ethnicity.

   3.4.2.3 *Psychopathy and Instrumentality.* A multiple regression indicated that

continuous psychopathy scores and ethnicity did not contribute significantly to the

prediction of continuous instrumentality, R^2 = .03, R^2_{adj} = .01, F (2, 121) =1.75, p = .18.

Using the continuous psychopathy variable and ethnicity as predictors of dichotomous

instrumentality, a binary logistic regression demonstrated that this model was

nonsignficant, χ^2 (3) = 2.92, p = .40. Using the continuous psychopathy variable and

ethnicity as predictors of categorical instrumentality, a multinomial logistic regression

demonstrated that this model was nonsignficant, χ^2 (6) = 5.99, p = .42.

   A 2 x 2 ANOVA revealed no significant interaction between dichotomous

psychopathy (score ≥ 25) and continuous instrumentality scores across ethnicity, F (1,

120) = .39, p = .53 with a *MS* for error of 31.51. A 2 x 2 ANOVA also revealed no

significant interaction between dichotomous psychopathy (score ≥ 30) and continuous

instrumentality scores across ethnicity, F (1, 120) = .02, p = .88 with a *MS* for error of

32.23. A 3 x 2 ANOVA revealed no significant interaction between categorical

psychopathy and continuous instrumentality scores across ethnicity, F (2, 120) = .10, p

= .91 with a *MS* for error of 31.60.

   Three separate three-way loglinear analyses were performed to assess for the

presence of an interaction due to ethnicity between the categorical psychopathy

variable and the categorical instrumentality variable, the dichotomous psychopathy

(score ≥ 30) and categorical instrumentality variable, and the dichotomous psychopathy

(score ≥ 25) and categorical instrumentality variable. Two additional three-way loglinear

analyses were performed to assess the presence of an interaction due to ethnicity

between the dichotomous psychopathy variable (score ≥ 30) and dichotomous

instrumentality variable, and the categorical psychopathy variable and dichotomous

instrumentality variable. Each of these five analyses revealed a violation of the

assumptions of loglinear analysis. A subsequent three-way loglinear analysis revealed

that the dichotomous psychopathy (score ≥ 25) by dichotomous instrumentality by

ethnicity interaction was not significant, χ^2 (1) = .41, p = .52.

4   Discussion

Few studies have investigated female psychopathy in general, with an even more noticeable lack of research specifically examining female youth psychopathy. Females represent a smaller proportion of an already small psychopathy base rate, however, this should not preclude examination of this population since violent crimes committed by female youth are increasing in both number and severity (Cauffmann et al., 2007; Puzzanchera et al., 2003; Savoie, 2000; Thomas, 2005). Further, research among male youth samples has shown that psychopaths' crimes are more violent (e.g., Frick et al., 2003) and their victims sustain greater injury (e.g., Vitacco et al., 2007). Despite controversy over the assessment of psychopathic traits in youth, it has been proposed that research in this area may provide valuable information for early intervention and public safety (Frick, 2002; Vincent & Hart, 2002). Indeed, intervention and treatment efforts might yield more success if implemented at an early age when youth are arguably more malleable. While this promising realization has made the study of psychopathy at the youth level flourish (Cook et al., 2010; Frick, 2004; Frick et al., 2003; Kerig & Stellwagen, 2010; Marshall, Egan, English, & Jones, 2006; Salekin, Debus, & Barker, 2010; Vasey, Kotov, Frick, & Loney, 2005), there remains a relative scarcity of studies that specifically examine female youth.

The base rate of psychopathy in the current study was consistent with both the adolescent (e.g., Schrum & Salekin, 2006) and adult (e.g., Jackson et al., 2002; Salekin et al., 1998; Weizmann-Henelius et al., 2010) female offender literature. For instance, Schrum and Salekin found that 8.8% of their detained female adolescent sample scored at or above the cut score of 30, and 16.9% of their sample were classifiable as a

psychopath based on a cut score of 25. Among adult female offenders, Jackson et al. (2002) found that 6.0% were classifiable as psychopathic using a cut score of 30, and this percentage increased to 21.9% when using a cut score of 25. The present study found that 7.0% of the female sample scored above 30, and 23.2% scored above 25, with both cut scores being indicative of high levels of psychopathic traits. Not surprisingly, the prevalence of psychopathy among the current sample was smaller in comparison to studies on male offenders. In fact, females are much less likely than their male counterparts to be classified as psychopaths. For example, Carpenter (2010) found that 17.5% of her generally violent youth sample were classifiable as a psychopath when using a cut score of 30 which is consistent with previous investigations among both adolescent (e.g., Forth et al., 2003; Kosson et al., 2002) and adult (e.g., Hare, 2003) male offenders.

While the majority of researchers (and to a lesser degree clinicians) now acknowledge that psychopathy is a valid construct at the youth level (e.g., Frick, 2009; Frick et al., 2000; Forsman et al., 2008; Salekin et al., 2006; Salekin et al., 2008; Vincent & Hart, 2002) the available literature has revealed that the factor structure of the PCL:YV remains unclear. In fact, some investigators (e.g., Gretton, McBride, Hare, O'Shaughnessy, & Kumka, 2001; Kosson et al., 2002; Murrie et al., 2004) have argued that only the PCL:YV total score should be used, given the uncertainty surrounding the true factor structure of the PCL:YV. However, relying on a total score may mask more detailed relationships between specific PCL:YV factors and facets and other important variables such as instrumental aggression. As outlined in the introduction, determining the factor structure of the PCL:YV is crucial to research on psychopathic traits in youth

(Salekin et al., 2006). Indeed, an understanding of the factor structure of the PCL:YV is necessary for the reliability of the instrument and its ability to allow researchers to consistently identify which factors mediate negative outcomes, a critical endeavour given the importance of intervention with at-risk youth (Salekin et al., 2006). Further, it is necessary to determine the specific constellation of traits that discriminate youth who are solely conduct-disordered from the small group of youth who display callous and unemotional traits associated with psychopathy (Frick, 2002; Frick et al., 2000; Salekin, 2006; Salekin & Frick, 2005). In response to these concerns, the primary goal of this study was to simultaneously examine three PCL:YV factor models to determine the most appropriate model for adolescent female offenders who have a history of violent offending. Since adolescent females comprise an increasingly larger portion of juvenile offenders as a whole (e.g., Puzzanchera et al., 2003; Thomas, 2005), an understanding of their personality traits is fundamental, considering this type of knowledge would provide important information regarding the development of targeted preventative strategies and appropriate treatment programs for this population (Caspi, Lynam, Moffitt, & Silva, 1993; Cook et al., 2010; Farrington, 2005).

Examination of the three primary factor models revealed that the two-factor model did not fit our female adolescent data well. The poor results for this model were not overly surprising; although this model has previously demonstrated success among adult populations, the present study's findings are consistent with more recent factor-analytic findings (Cooke & Michie, 2001; Darke, Kaye, Finlay-Jones, & Hall, 1998; Jackson et al., 2002; Jones et al., 2006; Kosson et al., 2002; McDermott et al., 2000; Sevecke et al., 2009; Vitacco et al., 2006; Weizmann-Henelius et al., 2010). Although

the three-factor model was unable to be validated conclusively, it provided the best fit of

the three primary factor models among our sample of female youth. Using the

requirements set out by Hu and Bentler (1999), this model was classified as an

adequate fit on one of the measures of relative fit and was classified as an excellent fit

on the absolute fit index. Research among adult female offenders that has examined

the factor structure of the PCL – R have shown that the three-factor model is the best

model to represent the construct of female psychopathy (Jackson et al., 2002; Warren

et al., 2003; Weizmann-Henelius et al., 2010). Based on the current study's results, the

three-factor model also appears promising in capturing the underlying dimensions of

psychopathy among female youth. Indeed, the present study's finding is partially

consistent with Jones et al. (2006) who demonstrated that a modified version of this

model was invariant across sex, indicating that the same model was applicable to both

genders. In their study, the original three-factor model did not meet acceptable

requirements for goodness of fit in their sample of female youth; therefore, the three-

factor model was modified slightly. Specifically, items 1 and 2 (impression management

and grandiose sense of self-worth, respectively) appeared to include overlapping

content based on the item descriptions in the PCL:YV manual, therefore an additional

parameter was added to allow for covariation in the error terms. Importantly, once

modifications are made to a model, the analysis shifts from being confirmatory to

exploratory, therefore, although their modified three-factor model appeared to be a good

fitting model, it was not able to be confirmed among their sample. The present study's

findings are also partially consistent with Sevecke et al. (2009) who demonstrated that

their two CFA relative fit indices were only slightly poorer than the standards suggested

by Hu and Bentler (1999) for an adequate fitting model. Their absolute fit index, the RMSEA, was considered adequate. Sevecke et al. (2009) classified this model as unacceptable among their particular sample, however, they concluded based on their results that the three-factor model is the best model of the three primary factor models.

The slight discrepancy between the apparent goodness of fit of the three-factor model in the current study in comparison to Sevecke et al.'s (2009) examination of the PCL:YV's factor structure deserves further explanation. First, in contrast to the latter researchers' sample, all the youth in the current study had at least one adjudicated violent offence. In fact, roughly one-third of Sevecke and colleagues sample did not have a violent offence conviction making their sample likely more heterogeneous in terms of offending history. Additionally, in comparison to the present study, Sevecke et al.'s (2009) sample consisted of German female youth. Although this difference in sample composition may serve as a potential explanation for the minor disparity between our results, perhaps a more reasonable speculation is that our finding that the three-factor model is the best model for use with this particular sample may be generalizable outside of North American female youth. Undoubtedly, however, further cross-cultural research among a sample composed of female youth who have a violent offending history and who are displaying roughly equivalent mean psychopathy scores as the present sample is required to establish this generalization. In fact, the discrepancy between our findings highlights the need to investigate the factor structure of the PCL:YV among diverse samples. It would appear that only the use of multiple samples from different settings will allow gender by ethnicity interactions to be clearly explicated. Notably, however, the sample used in this study is a valid and important

sample since violent offenders are most likely to receive assessments with this instrument.

Considering that the four-facet model is nearly identical to the three-factor model, apart from the inclusion of the antisocial items in the former model, it was expected that the four-facet model might also be considered a good model. In fact, findings from factor-analytic studies using adolescent samples have suggested that both the three-factor and four-facet models have provided good fit (Jones et al., 2006; Neumann, Kosson, Forth, & Hare, 2006; Salekin et al., 2006). Among female youth in particular, Jones et al. (2006) demonstrated that a modified four-facet structure was an adequate fit. However, in the current study, the three-factor and four-facet models did not generate similar fit indices. In fact, neither of the relative fit indices for the four-facet model met requirements for adequate model fit. Rather, these indices – which compare the specified model to a null or independence model (i.e., a very poor fitting model) – suggested that this model was a poor fit. It is also noteworthy that the RMSEA fit index – which measures how well a model fits the data in a population given the number of free parameters and, thus, is a good measure of a model's parsimony – was slightly larger for Hare's (2003) four-facet model (.032) compared with Cooke and Michie's (2001) three-factor model (.026) suggesting the latter model is more parsimonious.

Based on this and our other CFA results, the three-factor model appears to be the best model to reflect the disorder of psychopathy specifically in female youth, which is consistent with the female adult literature (Jackson et al., 2002; Warren et al., 2003; Weizmann-Henelius et al., 2010) and the two initial studies at the youth level (Jones et al., 2006; Sevecke et al., 2009). Importantly, the 13 criteria delineated by Cooke and

Michie (2001) are more closely aligned with traditional definitions of the syndrome. Indeed, early conceptualizations of psychopathy (Cleckley, 1988; Karpman, 1949; McCord & McCord, 1956/1964) do not focus on antisocial behaviour but rather, the interpersonal and affective traits of psychopathy. However, some consider excluding antisocial behaviour from the three-factor model to impact the integrity of the construct of psychopathy. For example, Hare's (2003) decision to include this additional factor was based on his conceptualization of psychopathy, and he argued that both personality features and antisocial traits are core features of psychopathy. Others have argued that the core feature of psychopathy resides in the personality features and not in antisocial behaviour (Blackburn, 1992; Cleckley, 1988; Lilienfeld, 1994; Skeem & Cooke, 2010; Widiger & Lynam, 1998; Weizmann-Henelius et al., 2010). In a fairly recent analysis, Cooke, Michie, Hart, and Clark (2004) concluded that antisocial behaviour is best viewed as a consequence, rather than a core feature, of psychopathy. Indeed, although most psychopaths can be diagnosed with antisocial personality disorder (APD; American Psychiatric Association, 1994), most individuals with APD are not psychopaths. The same generalization extends to youth with conduct disorder (CD); although most youth with psychopathic traits can be diagnosed with CD, most individuals with CD are not psychopaths.

Among the current sample of adolescent females, it appears that it is the arrogant, deceptive interpersonal style, the deficient affective experience, and the impulsive, interpersonal behaviour rather than the antisocial tendencies that underlie the construct of psychopathy. Indeed, this finding that the three-factor model is most suitable for adolescent females is in line with recent research by Weizmann-Henelius et al. (2010)

who also concluded that antisocial behaviour is not crucial in female psychopathy. Among their sample of adjudicated adult female homicide offenders, Weizmann-Henelius and colleagues examined both the two- and three-factor models using CFA. Given their conclusion that the three-factor model was the best fitting model among their more serious homicide offender sample, it appears that there may be no difference in which factor model is most appropriate across generally violent and more serious offences such as homicide. However, if it is feasible to obtain access to a large sample of female youth homicide offenders, researchers should aim to determine if this assumption would be supported.

Further examination of the correlations between individual items and their factors revealed that the prominent items include item 5: manipulation for personal gain, item 6: lack of remorse, item 7: shallow affect, item 8: callous/lack of empathy, and item 16: failure to accept responsibility for one's behaviours. This suggests that these are the features that strongly discriminate female youth who exhibit a high degree of psychopathic traits from those exhibiting lesser degrees of psychopathic traits. Indeed, these findings complement the research among adult female offenders. For instance, Salekin and colleagues (Salekin et al., 1997; Salekin et al., 1998) found that psychopathy in females is best conceptualized and assessed in terms of the affective and interpersonal characteristics rather than overt antisocial behaviours. These investigators, among others (Jackson et al., 2002; Vitale, Smith, Brinkley, & Newman, 2002; Warren et al., 2003; Weizmann-Henelius et al., 2010), suggest that affective characteristics such as callousness, unemotionality, and a lack of empathy are more relevant for assessing female psychopathy than are the antisocial criteria.

The presence of psychopathic traits have been shown to be related to instrumental aggression in adolescents (Agar, 2009; Cook et al., 2010; Flight & Forth, 2007; Murrie et al., 2004; Vitacco et al., 2006). Based on this existing literature, I hypothesized that youths with high levels of psychopathic traits would use more instrumental aggression than youths with low levels of psychopathic traits. Results revealed, however, that female youths with high levels of psychopathic traits did not use significantly more instrumental violence than youths with low levels of psychopathic traits. This finding was consistent with Carpenter (2010) who utilized a generally violent sample, but was not consistent with the research on homicide offenders. Specifically, Agar (2009), in her sample of youth homicide offenders, found that offenders who were high in psychopathic traits were more likely to use instrumental violence. Similarly, Woodworth and Porter (2002) found that psychopathic adult homicide offenders used significantly more instrumental violence than their nonpsychopathic counterparts. One potential explanation for the disparity between psychopaths and nonpsychopaths speculated by Woodworth and Porter (2002) involves examination of the seriousness of the offence that was committed. Specifically, these researchers hypothesized that for offences that may have more severe repercussions, psychopaths may behave in a more instrumental manner, or, rather, may behave in a less reactive and impulsive manner than nonpsychopaths. This hypothesis, referred to as the selective impulsivity hypothesis, suggests that when crimes are more serious, both in terms severity and legal consequences, psychopaths may invest more attention to the planning and perpetration of the offence so as to reduce their likelihood of being apprehended. Since psychopaths are likely deterred by the legal consequences rather than out of concern for the others,

they are less likely to use reactive violence when it could put them at risk of suffering the consequences.

In consideration of this hypothesis, the null findings in this sample may be due to the less severe nature of the crimes being perpetrated (i.e., generally violent vs. homicide) among the violent youth offenders in this sample. For instance, among the current sample of female youth, the overall level of violence, although serious, was not particularly severe. Indeed, 83.8% of offenses involved violence that was classified as minor or no victim injury. Further, only three (2.3%) victims were categorized as having sustained severe injury. It may be that there is less self-monitoring of their impulsivity as there would be in a high-stakes crime and as a result there is less instrumentality involved. In fact, an examination of the current study's findings in relation to other studies that have involved more serious crime (e.g., Agar, 2009; Woodworth & Porter, 2002), suggest that there is a gradual transformation from reactive to instrumentally motivated offences based on the severity of the crime, which is postulated under the selective impulsivity hypothesis.

The results from the current study were also consistent with Cook et al.'s (2010) findings among their small violent female offender sample. They demonstrated that youth scoring high on the PCL:YV did not differ from low-scoring female offenders in their use of proactive (instrumental) violence. When examining male youth (n = 47), however, these researchers found that offenders scoring high on the PCL:YV did display higher rates of proactive violence. Unfortunately, the severity of violence displayed in these two samples was not measured and therefore cannot be directly compared to the present findings. In fact, the severity of violence that these female and

male youth employed could be a contributing factor to the lack of a significant relationship between psychopathy and the use of proactive violence in their female sample as well. For instance, the female youth in Cook et al.'s (2010) sample may have engaged in violence that was relatively minor or less serious as compared to the violence that the male youth engaged in.

Another explanation for the present study's finding that psychopathy was not related to the use of instrumental aggression in the current sample stems from our understanding of the characteristics of young individuals in general. Unsurprisingly, childhood and adolescence have been associated with decreased executive control (i.e., increased impulsivity) and sensation seeking (Jonkman, 2006; Steinberg et al., 2008). Certainly, the high percentage (82.9%) of violent offences that contain at least some element of reactivity in the present study suggest that these female youth are acting on their immediate impulses, without prior planning or forethought. Logically, research among justice involved youth has highlighted the importance of considering impulsivity in youths (e.g., Pardini, Lochman, & Frick, 2003). In fact, youth with high levels of psychopathic traits may be more generally impulsive than their adult counterparts, which helps to explain why these female youth do not appear to reduce or control their impulsivity to the same extent during offences as some adults. On a similar note, it may be that the level of instrumentality in these youth is masked by their high degree of impulsivity. Indeed, the measures used to assess instrumentality may not be sensitive enough to capture relatively low levels of instrumentality.

Prior research among both adult and youth samples has indicated that Factor 1 scores, namely the interpersonal (i.e., Facet 1) and affective (i.e., Facet 2) features, are

more strongly related to instrumental violence than Factor 2 scores, which represent the behavioural (i.e., Facet 3) and antisocial (i.e., Facet 4) features of psychopathy. Despite the lack of a statistically significant relationship between the use of instrumental aggression and psychopathy total scores, the role of the PCL:YV factor and facet scores were also considered. A consideration of the specific factors have previously provided a more refined examination of the relationship between psychopathy and instrumental aggression (Carpenter, 2010). Carpenter demonstrated that although an initial examination of PCL:YV total scores and instrumentality was not significant, closer consideration revealed that Factor 1, but not Factor 2, accounted for a significant proportion of instrumentality among her predominantly male sample. Similar to Carpenter (2010), Flight and Forth (2007), among their exclusively male sample, found that PCL:YV Factor 1 scores contributed significantly to the prediction of instrumentality. Cook et al.'s (2010) examination of this relationship among two individual (one male, one female) samples also found that youth scoring high on Factor 1 were significantly more likely to use instrumental violence.

Analysis of the individual facet scores among youth samples has also been revealing. For instance, Carpenter demonstrated that Facet 1 (interpersonal) was a marginally significant predictor of the instrumentality of the offense, whereas Facet 2 (affective), Facet 3 (behavioural), and Facet 4 (antisocial) were not. Carpenter's results were consistent with Vitacco et al. (2006) who found, among their exclusively male sample, that the interpersonal facet (i.e., Facet 1) was significantly related to instrumental aggression as measured by the ARF. Somewhat surprisingly, findings from the current study did not show either factor or facet level relationships with

instrumentality. Specifically, neither Factor 1, nor Facet 1 or 2, were significant predictors of the use of instrumental violence in this sample. Further examination of the relationship between the interpersonal and affective factors of psychopathy and instrumentality using SEM also did not reveal a significant relationship. A comparison of the composition of the sample in the current study as compared to the sample used by Vitacco and colleagues may serve as an explanation for this discrepancy. Indeed, in the latter study, the mean PCL:YV total score was over 12 points higher than that of the former study (31.26 versus 18.83) which indicates that their sample was exhibiting a more severe level of psychopathic traits.

The findings among the present study's female sample demonstrate that young girls' use of instrumental violence is likely different than their male counterparts. As outlined in the introduction, Factor 1 items on the PCL:YV closely resemble CU traits as described by Frick et al. (2000). However, evident from the present study's results, CU traits, as measured by PCL:YV Factor 1 scores, were not an important predictor of the use of instrumental violence. Indeed, high scores on the interpersonal facet of the PCL:YV, characterized by impression management, a grandiose sense of self-worth, pathological lying and manipulation for personal gain were not related to the use of instrumental violence among this generally violent female youth sample. These findings suggest that whereas males likely become violent when they feel disrespected, or when their perceived status is challenged (Vitacco et al., 2006), this does not appear to be the case with females. Specifically, our results do not lend support to the theory of threatened egotism whereby individuals with high levels of narcissism respond violently when they perceive they are insulted or disrespected (Barry, Grafeman, Adler, &

Pickard, 2007; Barry, Pickard, & Ansel, 2009; Bushman & Baumeister, 1998; Cale, 2004; Thomaes, Stegge, Bushman, & Olthof, 2008; Washburn, McMahon, King, Reinecke, & Silver, 2004). For instance, the psychopathic characteristics inherent in Facet 1 (interpersonal) among female youth may be manifested in more covert, indirect aggression, rather than, overt criminal behaviour. Indeed, a line of research has demonstrated a link between psychopathy and indirect aggression (Marsee & Frick, 2007; Marsee, Silverthorn, & Frick, 2005; Penney & Moretti, 2007; Warren & Clarbour, 2009). Studies have shown that female youth use more relational aggression strategies to inflict suffering in their victim (Crick, 1996; Crick, Casas, & Mosher, 1997; Crick & Grotpeter, 1995; Ostrov & Keating, 2004). Also, indirect aggression has been shown to be associated with increased perceived popularity and social dominance, although not necessarily increased ratings of likability, particularly for girls (Prinstein & Cillessen, 2003; Xie, Cairns, & Cairns, 2002). For these reasons, female youth with psychopathic traits may be more inclined to use more covert rather than overt forms of aggression. Therefore, it has been argued that when using aggression in a goal-directed and empathically cold manner, socially-skilled psychopaths would arguably be more likely to use indirect over direct forms of aggression due to the reduced personal costs involved (Porter & Woodworth, 2006).

Although the affective features (i.e., lack of remorse, shallow affect, callous/lack of empathy, and failure to accept responsibility for one's behaviours) are essential in discriminating among females scoring high on the PCL:YV versus those who display less psychopathic traits, they are, like the interpersonal features, not important in the prediction of the use of instrumental violence among these female youth. This finding

may in fact be due to the nature of these items. Specifically, in order for these characteristics to influence these youths' use of instrumental violence they would have to recognize prior to the initiation of violence that they themselves would not suffer emotional consequences as a result of their actions. Indeed, to engage in the cold-blooded nature of instrumentally motivated aggressive acts, these offenders would need to be cognizant of the fact that they are incapable of taking their victims perspective and are unable to experience the resulting negative affect that other nonpsychopathic youth would likely experience. Conversely, provided that affective deficits and impaired empathic responses would logically be related to the callous treatment of others, this nonsignificant finding may be related to a lack of power or an artifact of restricted range. Although the current study included a large sample of female youth, the use of instrumental violence among these females was relatively small compared to studies with males, as mentioned earlier in this section. In fact, since the entire sample consisted of female youth offenders, who are a relatively homogenous group, the range of scores on the instrumentality measures and the PCL:YV may have been restricted leading to attenuation of the correlation between these two variables. It would be beneficial to examine this relationship among a sample that contains a larger percentage of female psychopaths who are using instrumental violence.

The current study's findings, in combination with other research on female psychopathy, may also suggest that the PCL measures may not be sufficiently sensitive in detecting the traits that are associated with female psychopathy, and which may serve to uniquely predispose females to aggressive and violent behaviour (Odgers, Moretti, & Reppucci, 2005; Verona & Vitale, 2006). In fact, a unitary "all-encompassing"

measure of psychopathy may be limited when applied to female populations. This begs the question: why might there be gender differences in the expression of psychopathy? First, societal norms and expectations may serve to inhibit overt antisocial behaviours in females leading to a restriction of range in this domain. Second, some researchers have suggested that a higher level of psychopathic traits may be needed before females break gender-specific norms and engage in aggressive acts with a minimal amount of anxiety or remorse arising from their behaviours (Broidy, Cauffman, Espelage, Mazerolle, & Piquero, 2003; Verona & Vitale, 2006). Collectively, these two hypotheses imply that the assessment of personality-based psychopathic traits (e.g., egocentricity, callousness, and manipulation) may be more sensitive at detecting psychopathy in females rather than the behavioural features, which is evident among this particular sample.

Some descriptive findings that detail the nature of female violence are also worthy of further discussion. First, previous research and theory concerning adult violent offenders has suggested that it is often difficult to classify violence as either reactive or instrumental, and that violence is likely a combination of both reactivity and instrumentality (e.g., Bushman & Anderson, 2001; Woodworth & Porter, 2002). Examination of the breakdown of offenses committed by the female youth in this study into four categories (as outlined by Woodworth & Porter, 2002) provides support for this notion. Specifically, although the near majority (44.3%) of the offenses were considered to be reactive in nature, there was a roughly equal split into the other three categories. Notably, a large proportion (82.9%) of the violent offences that these girls engaged in had some reactive component; less than one-fifth (17.2%) were purely instrumentally

motivated. Secondly, examination of the specific motivations for offences that contained at least some instrumental component demonstrated that violence was most frequently used to gain revenge or retribution. The second most frequent motivation for the use of instrumental violence among the current sample was monetary gain. These findings are consistent with studies at both the adult (e.g., Woodworth & Porter, 2002) and youth (e.g., Carpenter, 2010) level that have specifically examined primary motivation for the use of instrumentality suggesting that regardless of crime severity (i.e., homicide vs. generally violent), age of the sample (i.e., adult or youth), and gender (i.e., male or female), these two motives are most likely when an offender engage in instrumental violence.

Our results also revealed that these female youth are equally likely to victimize strangers and those having a specific relationship to the offender (e.g., group home worker, school teacher, etc.), followed by acquaintances. Victims who were friends or family were much less frequently targeted. Research among adult male samples have shown that psychopaths are more likely to target strangers (e.g., Williamson et al., 1987; Herve, Mitchell, Cooper, Spidel, & Hare, 2004; Juodis et al., 2010). Among more directly comparable samples (e.g., Agar, 2009; Carpenter, 2010), male and female violent offenders' victims were more often strangers and acquaintances rather than friends or family members. Finally, the majority (62.3%) of these female youth were not using drugs and/or alcohol prior to or during the offense. This finding is consistent with Carpenter (2010), however, among youth homicide offenders (Agar, 2009) this rate drops to 32.0%. It appears that among female youth, the use of substances may not be a primary contributor or explanation for their engagement in generally violent offences.

Further, based on the relatively low prevalence of alcohol and/or drug use prior to or during the offence, these substances were not a major factor in many of the violent offences that were considered in the current study, making it difficult to determine their relationship to offence motivation.

Given the relative recency of the application of the continuous instrumental aggression measure, the ARF, the construct validity of this measure was assessed. As previously noted, the construct validity of this measure was initially evaluated among an exclusively male adolescent sample (see Vitacco et al., 2006). This study was the first to assess the validity of this new measure among a female sample. Results demonstrated that the ARF's single factor model was not a good fit among this sample of violent female youth, however, fit indices did approach the standards set out by Hu and Bentler (1999) for an adequate fitting model. Interestingly, the presence of two features (i.e., goal directed and planning or preparation) best represented the construct of instrumental aggression which suggests that these two characteristics of aggression are principal components of instrumental aggression among female youth. Vitacco and colleagues, among their exclusively male sample, found that three features best represented the construct of instrumental aggression: goal directed, unprovoked, and a lack of anger during the aggression; however, among the current sample, the latter two characteristics were identified as weak and moderate features, respectively, of the construct of instrumental aggression. Based on the findings from current female sample, as well as Vitacco et al.'s (2006) exclusively male sample, it is evident that goal-directedness is a fundamental feature of instrumentality since it is a shared feature in the aggressive acts of both male and female youth. Alternately, the findings from this

study also suggest a difference in the instrumentality of offences across gender; female youth who commit instrumental aggression are potentially using a greater degree of planning or preparation prior to these offenses. Further, the finding that the lack of anger item is not central to the construct of instrumental aggression among females once again highlights our earlier finding that affective arousal is not a principal component of instrumental aggression.

4.1   Limitations

The findings from this study must be considered in light of some methodological limitations. First, this was an archival study; information was collected through file review since interviews could not be conducted with participants as they were no longer receiving assessment or treatment services. Therefore, although the client files were generally quite comprehensive and research has shown that scoring of the PCL:YV based on file review is a valid, acceptable method (Bolt et al., 2004; Forth, 2005; Grann et al., 1998; Wong, 1988), interviews may have been beneficial especially when assessing the interpersonal and affective items of the PCL:YV. Relatedly, the initial psychological and psychiatric evaluations of the youth in the current sample, which were used in conjunction with other file information to inform PCL:YV ratings, may have been biased by semantic matching on the part of the interviewee (i.e., the youth). In other words, the semantic style of the interviewer may have been mimicked in the youth's responses to the interviewer's questions which may have led to either a more or less favourable clinical impression of the youth being assessed (Hancock, Curry, Goorha, & Woodworth, 2008). Consequently, using the clinicians' assessment of a particular youth, their PCL:YV score may have been either inflated or deflated in comparison to their true

score. Although this is a valid measurement concern, the test-retest reliability of the PCL:YV has been substantiated across independant raters (e.g., Skeem & Cauffman, 2003) and a complete review of not only the clinical assessments but of all other documentation in the file was conducted to determine the PCL:YV scores.

Second, only aggressive acts that were officially charged were examined. Although this ensured that there was file information available pertaining to the youth's charge, this did not allow for a comprehensive examination of the offender's full extent of their violent acts. If violent offenses that were undetected, or those that did not result in charges being laid on the youth, could have been assessed, an even more accurate representation of these females' violence may have been possible. For instance, violence directed at family members or close friends may have been more prevalent considering that these victims may have not wanted to press charges against the youth.

Another shortcoming of the current study, as was alluded to earlier, involves the nature of the sample. Specifically, the current female sample had a limited number of purely instrumental offenses compared to other generally violent youth samples (i.e., Carpenter, 2010), as well as youth (e.g., Agar, 2009) and adult (e.g., Woodworth & Porter, 2002) homicide samples. For instance, in Carpenter's (2010) study, 31.8% of offenses were purely instrumental, whereas in the current study only 17.2% of offenses were purely instrumental. Although instrumental offences are significantly less common than reactively violent offences among this particular sample, future research examining psychopathy and instrumentality among a sample containing a larger proportion of instrumental female offenders is warranted since a lack of power may have precluded our ability to find a significant relationship between these two constructs.

There was also a limitation with the software program (i.e, Amos) used to perform the CFA and SEM analyses. Amos does not permit analyses of polychoric correlations, which adjust for lack of normality in item-level data. As described earlier, I used the GLS estimation procedure which relies on regular correlation matrices as it was recommended by both Tabachnik and Fidell (2007) and Hu et al. (1992) when data are non-normal. This method is, although better than the standard ML estimation procedure, still limited in that it also requires large samples.

Finally, although our sample is comparable in size to existing studies examining the factor structure of the PCL:YV among female youth, it is still not very large. Given the large number of parameters to be estimated in the two-factor (52), three-factor (42), and four-facet (60) models, it is plausible that our study was underpowered. Indeed, even to include 5 participants per parameter estimated, would suggest obtaining 260, 210, and 300 participants, respectively. Therefore, these data are certainly not definitive and additional research should include, if at all feasible, larger samples of female youth.

4.2   Conclusion

The current study was the first empirical, large-scale Canadian study of generally violent female youth offenders, and one of the largest studies to have included females in North America. These females were aged 12 to 17 and the majority were Caucasian. The author examined the factor structure of the PCL:YV and investigated the relationship between psychopathy and the use of instrumental aggression.

This study is one of few to have examined the factor structure of the PCL:YV among adolescents, and the first to examine the three primary factor models simultaneously among a large Canadian sample of female youth violent offenders.

Having access to a large sample, we were able to determine which of these factor models is most appropriate for use within our sample of females. Our analysis revealed that the three-factor model was the most promising model which is in line with Jones et al. (2006) who showed that a modified version of this model was invariant across gender. Our results also supplement the existing, although also limited, adult female literature (Jackson et al., 2002; Warren et al., 2003; Weizmann-Henelius et al., 2010) suggesting that the three-factor model is particularly well-suited to offending females, regardless of age.

Upon examination of the potential relationship between instrumental aggression and psychopathic traits among these females, it was discovered that girls classified as having a high degree of psychopathic traits were not committing more instrumentally motivated violent acts than girls who scored lower on psychopathy. Numerous explanations for this finding were explored above, but it seems possible that due to the relatively less severe nature of violence that these girls are engaging in, they are less actively monitoring their impulsivity. Perhaps they are viewing these crimes as less likely to be given harsh sanctions or that their being female may lead to more lenient treatment by the criminal justice system in comparison to male youth. Another potential explanation is that these youth may be less motivated to plan incidents that are not as severe in their nature and conceivably less fulfilling for those with a higher level of psychopathic traits. Indeed, the callous and unemotional characteristics that are thought to underpin the disorder (especially at the youth level) may enable youth scoring higher on the PCL-YV to engage in more cold-blooded planning for serious offences, while the

empathy present in individuals who possess less psychopathic traits may dissuade such individuals from orchestrating particularly callous and violent inclinations.

The current study's validation of the construct validity of the ARF demonstrated that this appears to be a promising new measure. Although specifically designed to assess the continuum between instrumental and reactive aggression in youth offender samples, further validation of the measure among violent female samples appears to be necessary. Among adolescent females, two features appear to be the most useful in understanding instrumental aggression. Specifically, females who are using instrumental aggression are committing aggressive acts that are most clearly defined by the presence of planning or preparation and goal directedness. Accordingly, this finding demonstrates that two of the five features of the construct of instrumentality as measured by the ARF are dominant in understanding this type of violence when employed by female youth in particular. Indeed, we can expect these girls to engage in both a high degree of planning and foresight prior to the commission of their crimes and their external goal will be obvious.

Notably, the findings from the current study have important clinical applications and provide insight into areas requiring further research. First, the three-factor model appears to be capable of capturing the construct of psychopathy among female youth offenders who have a history of violence. More specifically, it appears that three personality dimensions underlie the construct of psychopathy among this sample: the first which represents an arrogant and deceitful interpersonal style, the second which represents deficits in affective experience, and the final factor which represents interpersonally impulsive behaviour. However, as our instrumentality results

demonstrated, the utility of differentiating between the PCL:YV factors and facets among a female sample who have committed a violent offence was not supported. Indeed, the author suggests that professionals continue to use total scores specifically for this population and that caution should be taken when interpreting factor scores until further research is conducted. This research should examine the factors and their relations with other external variables, such as institutional behaviour, recidivism, and treatment outcomes that may be of use in clinical settings. If further research can provide evidence that the factor scores are useful in understanding external correlates such as treatment compliance and responsiveness, and can establish the PCL:YV's utility in predicting negative outcomes such as offending with female youth, then the use of factor scores may be justified.

Current findings also highlight the need to examine replicability of factor structures in different kinds of youth samples in order to evaluate the generality of the latent dimensions underlying scores on psychopathy measures across ethnicity and offence severity. Indeed, ethnic minorities are frequently overrepresented in the criminal justice systems of North America (e.g., Brzozowski, Taylor-Butts, & Johnson, 2006; Calverley, 2007), and given the clinical applications of the PCL:YV in criminal justice contexts, it is reasonable to suggest that this measure may be used quite frequently with ethnic minority youths. Although there was no significant difference in psychopathy scores across ethnicity among this sample, which is consistent with research by Schmidt et al. (2006), PCL:YV total scores were significantly different between Aboriginal and White youth among a sample of male and female youth (Stockdale, Olver, & Wong, 2010). Specifically, Aboriginal youth's scores were frequently close to one standard deviation

higher than White youth's scores on the PCL:YV. Given this discrepancy in scores, the

measurement of psychopathic traits using the PCL:YV among Aboriginal youth is

uncertain. As such, future research should examine if the PCL:YV as a measure of

assessing psychopathic traits is invariant across Aboriginal versus Non-aboriginal

youth and, additionally, if the three-factor model is the best model for use with female

youth offenders who have committed more serious violent offences such as homicide.

Given that nearly two-thirds of violent offences committed were primarily reactive

in nature, and that four-fifths contained at least some reactive qualities, emotional

regulation services such as anger management should be used as they would likely be

of the greatest benefit in preventing these youth from violently recidivating. In contrast,

interventions aimed at reducing impulsive behaviours may be less effective among the

smaller proportion of offenders in the current sample who are engaging in violence that

is primarily premeditated, unemotional, and goal-driven. In such cases, a focus on

alternative ways to achieve their goals and resolve conflict may be most effective. As

such, an initial assessment to determine the motivation for the offenders' violent

offences may prove useful in selecting the most appropriate course or method of

intervention.

This research has provided us with a greater understanding of not only the

prominent personality features among female youth with psychopathic traits but also the

dynamics and motivations of female youth violence. Considering the enormous costs

that psychopaths create in terms of the crimes they perpetrate and their immediate and

residual effects on victims and members of society as a whole, the current study's

examination of severe personality characteristics and violence within an arguably still

malleable youth sample may facilitate the development of treatment programs aimed at targeting violence among female young offenders. It is hoped that the results from this study will provide some direction for the use of the PCL:YV with female youth and for future research among this notably understudied population.

References

Acheson, S. K. (2005). Review of the Psychopathy Checklist-Revised, 2nd Edition. In R. A. Spies & B. S. Blake (Eds.), *The sixteenth mental measurements yearbook,* (pp. 429-431). Lincoin, NE: Buros Institute of Mental Measurements.

Agar, A. (2009). Teenage killers: A comprehensive examination of Canadian youth-perpetrated homicide, psychopathy, motivation, violence, and the number of perpetrators (Unpublished master's thesis). The University of British Columbia, Kelowna, BC, Canada.

American Psychological Association (1994). *Publication manual of the American Psychological Association* (4th ed.). Washington, D. C.: Author.

Andrews, D. A. & Bonta, J. (1998). *The Psychology of Criminal Conduct*, Cincinnati: Anderson.

Artz, S. (2000). Considering adolescent girls' use of violence: A researcher's reflections on her inquiry. *The B.C. Counsellor, 22*, 44-54.

Auditor General of BC (2000). *Fostering a Safe Learning Environment: How the British Columbia Public School System Is Doing.* Victoria, BC: Office of the Auditor General.

Barry, C. T., Grafeman, S. J., Adler, K. K., & Pickard, J. D. (2007). The relations among narcissism, self-esteem, and delinquency in a sample of at-risk adolescents. *Journal of Adolescence, 30,* 933-942.

Barry, C. T., Pickard, J. D., & Ansel, L. L. (2009). The associations of adolescent invulnerability and narcissism with problem behaviors in at-risk adolescents. *Personality and Individual Differences, 47,* 577-582.

Berkowitz, L. (1993). *Aggression: Its causes, consequences, and control.* New York: McGraw-Hill.

Blackburn, R. (1992). Criminal behaviour, personality disorder, and mental illness: The origins of confusion. *Criminal Behaviour and Mental Health, 2*, 66-77.

Blackburn, R. (1998). Criminality and the interpersonal circle in mentally disordered offenders. *Criminal Justice and Behavior, 25*, 155-176.

Blair, R., Peschardt, K., Budhani, S., Mitchell, D., & Pine, D. (2006). The development of psychopathy. *Journal of Child Psychology and Psychiatry, 47*, 262-276.

Boccaccini, M.T., Murrie, D.C., Clark, J. & Cornell, D.G. (2008). Describing, diagnosing, and naming psychopathy: How do youth psychopathy labels influence jurors? *Behavioral Sciences and the Law, 26,* 511-528.

Bollen, K. A., & Stine, R. A. (1993). Bootstrapping goodness-of-fit measures in structural equation models. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models*, (pp. 111-135). Newbury Park, CA: Sage.

Bolt, D. M., Hare, R. D., Vitale, J. E., & Newman, J. E. (2004). A multigroup response theory analysis of the Psychopathy Checklist-Revised. *Psychological Assessment, 16*, 155-168.

Broidy, L., Cauffman, E., Espelage, D. L., Mazerolle, P., & Piquero, A. (2003). Sex differences in empathy and its relation to juvenile offending. *Violence and Victims, 18,* 503-516.

Brzozowski, J.-A., Taylor-Butts, A., & Johnson, S. (2006). *Victimization and offending among the Aboriginal population in Canada.* Ottawa, ON: Statistics Canada, Canadian Centre for Justice Statistics.

Burke, J.D., Loeber, R., & Lahey, B.B. (2007). Adolescent conduct disorder and

 interpersonal callousness as predictors of psychopathy in young adults. *Journal of*

 Clinical Child and Adolescent Psychology, 36, 334-346.

Bushman, B. J., & Anderson, C. A. (2001). Is it time to pull the plug on the hostile

 versus instrumental dichotomy? *Psychological Review, 108*, 273-279.

Bushman, B., & Baumeister, R. (1998). Threatened egotism, narcissism, self-esteem,

 and direct and displaced aggression: Does self-love or self-hate lead to violence.

 Journal of Personality and Social Psychology, 75, 219-229.

Cale, E. M. (2004). *Psychopathy factors in predicting risk for aggression*

 and violent behavior: A test of the "threatened egotism" hypothesis. (Unpublished

 doctoral dissertation). Emory University, Atlanta, GA.

Calverley, D. (2007). *Youth custody and community services in Canada, 2004–2005*.

 Ottawa, ON: Statistics Canada, Canadian Centre for Justice Statistics.

Campbell, M. A., Porter, S., & Santor, D. (2004). Psychopathic traits in adolescent

 offenders: An evaluation of criminal history, clinical, and psychosocial correlates.

 Behavioral Sciences and the Law, 22, 23-47.

Carpenter, T. L., (2010). Violent Young Offenders: An Examination of how psychopathy

 and instrumentality inform our understanding of aggression. (Unpublished master's

 thesis). The University of British Columbia, Kelowna, BC, Canada.

Caspi, A., Lynam, D., Moffitt, T. E., & Silva, P. A. (1993). Unraveling girls' delinquency:

 Biological, dispositional, and contextual contributions to adolescent misbehavior.

 Developmental Psychology, 29, 19-30.

Cauffman, E., Lexcen, F. J., Goldweber, A., Shulman, E. P., & Grisso, T. (2007).

Gender differences in mental health symptoms among delinquent and community youth. *Youth Violence and Juvenile Justice, 5*, 287-307.

Cleckley, H. (1988). *The mask of sanity (5th ed).* St Louis: C.V. Mosby.

Cook, N. E., Barese, T. H., & DiCataldo, F. (2010).The confluence of mental health and psychopathic traits in adolescent female offenders. *Criminal Justice and Behavior, 37*, 119-135.

Cooke, D. J., & Michie, C. (2001). Refining the construct of psychopathy: Towards a hierarchical model. *Psychological Assessment, 13*, 171-188.

Cooke, D. J., & Michie, C., Hart, S. D., & Clark, D. (2004). Reconstructing psychopathy: Clarifying the significance of antisocial and socially deviant behaviour in the diagnosis of psychopathic personality disorder. *Journal of Personality Disorders, 18*, 337-357.

Cornell, D. J., Warren, J., Hawk, G., Stafford, E., Oram, G., & Pine, D. (1996). Psychopathy in instrumental and reactive violent offenders. *Journal of Consulting and Clinical Psychology, 64,* 783-790.

Costa, P. T., Jr. & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) manual.* Odessa, FL: Psychological Assessment Resources.

Corrado, R. R., Vincent, G. M., Hart, S. D., & Cohen, I. M. (2004). Predictive validity of the Psychopathy Checklist: Youth Version for general and violent recidivism. *Behavioral Sciences and the Law, 22*, 5-22.

Crawley, T., & Martin, F. H. (2006). Impulsive-aggression, antisocial behavior, and subclinical psychopathy: Preliminary findings from an undergraduate female sample. *Psychiatry, Psychology, and Law, 13,* 232-242.

Crick, N. R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of the children's future social adjustment. *Child Development, 67*, 2317-2327.

Crick, N. R., Casas, J. F., & Mosher, M. (1997). Relational and overt aggression in preschool. *Developmental Psychology, 33*, 579-588.

Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66*, 710-722.

Darke, S., Kaye, S., Finlay-Jones, J. R., & Hall, W. (1998). Factor structure of psychopathy among methadone maintenance patients. *Journal of Personality Disorders, 12*, 162-171.

Dempster, R. J., Lyon, D. R., Sullivan, L. E., Hart, S. D., Smiley, W. C., & Mulloy, R. (1996). *Psychopathy and instrumental aggression in violent offenders.* Paper presented at the 104th Annual Convention of the American Psychological Association, Toronto, Ontario, Canada.

Duchesne, D. (1997). Street Prostitution in Canada. *Juristat, 17*(2) (Cat. No. 85-002-XPE). Ottawa, ON: Statistics Canada.

Edens, J. F., Guy, L. S., & Fernandez, K. (2003). Psychopathic traits predict attitudes towards a juvenile capital murderer. *Behavioral Sciences and the Law, 21*, 713-736.

Edens, J. F., Skeem, J. L., Cruise, K. R., & Cauffman, E. (2001). Assessment of "juvenile psychopathy" and its association with violence: A critical review. *Behavioral Sciences and the Law, 19*, 53-80.

Edens, J. F. & Vincent, G. M. (2008). Juvenile Psychopathy: A clinical construct in need of restraint. *Journal of Forensic Psychology Practice, 8,* 186-197.

Farrington, D. P. (2005). The importance of child and adolescent psychopathy. *Journal of Abnormal Child Psychology, 33*, 489-497.

Flight**,** J. I., & Forth**,** A. E. (2007). Instrumentally violent youths: The roles of psychopathic traits, empathy, and attachment. *Criminal Justice and Behavior, 34,* 739-751.

Forsman, M., Lichtenstein, P., Andershed, H., & Larsson, H. (2008). Genetic effects explain the stability of psychopathic personality from mid- to late adolescence. *Journal of Abnormal Psychology, 117,* 606-617.

Forth, A. E. (2005). Hare Psychopathy Checklist: Youth Version. In T. Grisso, G. Vincent, & D. Seagrave (Eds.), *Handbook of mental health screening and assessment for juvenile justice,* (pp. 324-338). New York: Guilford Press.

Forth, A. E., & Burke, H. C. (1998). Psychopathy in adolescence: Assessment, violence, and developmental precursors. In D. J. Cooke, A. E. Forth, & R. D. Hare (Eds.), *Psychopathy: Theory, research and implications for society*, (pp. 205-229). London: Kluwer.

Forth, A. E., Hart, S. D., & Hare, R. D. (1990). Assessment of psychopathy in male young offenders. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 2,* 342-344.

Forth, A. E., Kosson, D. S., & Hare, R. D. (2003*). Hare Psychopathy Checklist: Youth Version technical manual.* Toronto, Ontario, Canada: Multi-Health Systems.

Forth, A. E., & Mailloux, D. L. (2000). Psychopathy in youth: What do we know? In C. Gacono (Ed.), *The clinical and forensic assessment of psychopathy: A practitioners guide*, (pp. 25-54). Mahwah, NJ: Erlbaum.

Frick, P. J. (2002). Juvenile psychopathy from a developmental perspective: Implications for construct development and use in forensic assessments. *Law and Human Behavior, 26*, 247-253.

Frick, P. J. (2004). Integrating research on temperament and childhood psychopathology: Its pitfalls and promise. *Journal of Clinical Child and Adolescent Psychology, 33,* 2-7.

Frick, P. J. (2009). Extending the construct of psychopathy to youths: Implications for understanding, diagnosing, and treating antisocial children and adolescents. *Canadian Journal of Psychiatry,12,* 803-812.

Frick, P. J., Barry, C. T., & Bodin, S. D. (2000). Applying the concept of psychopathy to children: Implications for assessment of antisocial children and adolescents. In C. B. Gacono (Ed.), *The clinical and forensic assessment of psychopathy: A practitioner's guide,* (pp. 3-24). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Frick, P. J., Bodin, S. D., & Barry, C. T. (2000). Psychopathic traits and conduct problems in community and clinic-referred samples of children: Further development of the Psychopathy Screening Device. *Psychological Assessment, 12,* 382-393.

Frick, P. J., Cornell, A. H., Barry, C.T., Bodin, S.D., & Dane, H.A. (2003). Callous-unemotional traits and conduct problems in the prediction of conduct problem severity, aggression, and self-report of delinquency. *Journal of Abnormal Child Psychology, 3*, 457-470.

Frick, P. J., & Hare, R. D. (2001). *Manual for the Antisocial Process Screening Device*. Toronto, Ontario, Canada: Multi-Health Systems.

Frick, P. J., & White, S. F. (2008). Research review: The importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior*. Journal of Child Psychology and Psychiatry, 49,* 359-375.

Fritz, M.V., Wiklund, G., Koposov, R. A., Klinteberg, B., & Ruchkin, V. V. (2008). Psychopathy and violence in juvenile delinquents: What are the associated factors? *International Journal of Law and Psychiatry, 31*, 272-279.

Grann, M., Langstrom, N., Tengstrom, A., & Stalenheim, E. G. (1998). Reliability of file-based retrospective ratings of psychopathy with the PCL – R. *Journal of Personality Assessment, 70*, 416-426.

Gretton, H., McBride, M., Hare, R., O'Shaughnessy, R., & Kumka, G. (2001). Psychopathy and recidivism in adolescent sex offenders*. Criminal Justice and Behavior, 28,* 427-449.

Hancock, J. T., Curry, L. E., Goorha, S. & Woodworth, M. (2008). On Lying and Being Lied To: A Linguistic Analysis of Deception in Computer-Mediated Communication. *Discourse Processes, 45*, 1-23.

Hare, R. D. (1981). Psychopathy and violence. In J. R. Hayes, T. K. Roberts, & K. S.

Solway (Eds.), *Violence and the Violent Individual,* (pp. 53-74). Jamaica, NY:

Spectrum.

Hare, R. D. (1991). *Manual for the Psychopathy Checklist-Revised*. Toronto, Ontario,

Canada: MultiHealth Systems.

Hare, R. D. (1994). *Without Conscience: The Disturbing World of Psychopaths Among

Us.* New York: Simon and Schuster.

Hare, R. D. (1996). Psychopathy: A clinical construct whose time has come. *Criminal

Justice and Behavior, 23*, 25-54.

Hare, R. D. (2003). *The Hare Psychopathy Checklist-Revised, Second Edition*. Toronto,

Canada: Multi-Health Systems.

Hare, R. D. (2006). Psychopathy: a clinical and forensic overview. *Psychiatric Clinics of

North America, 29,* 709-724.

Hare, R. D., Harpur, T. J., Hakstian, A. R., Forth, A. E., Hart, S. D., & Newman, J. P.

(1990). The revised psychopathy checklist: Reliability and factor structure.

Psychological Assessment: A Journal of Clinical and Consulting Psychology, 2,

338-341.

Hare, R. D., McPherson, L. M., & Forth, A. E. (1988). Male psychopaths and their

criminal careers. *Journal of Consulting and Clinical Psychology, 56*, 710-714.

Hare, R. D., & Neumann, C. S. (2005). The structure of psychopathy. *Current

Psychiatry Reports, 7,* 1-32.

Hare, R. D., & Neumann, C. S. (2006). *The PCL – R assessment of psychopathy: Development, structural properties, and new directions.* In C.Patrick (Ed.), *Handbook of psychopathy*, (pp. 58-90). New York: Guilford.

Hare, R. D., & Neumann, C. S. (2008). Psychopathy as a clinical and empirical construct. *Annual Review of Clinical Psychology*, *4*, 217-246.

Harpur, T. J., Hakstian, A. R., & Hare, R. D. (1988). Factor structure of the Psychopathy Checklist. *Journal of Consulting & Clinical Psychology, 56,* 741-747.

Harpur, T. J., Hare, R. D., & Hakstian, A. R. (1989). Two-factor conceptualization of psychopathy: Construct validity and assessment implications. *Journal of Consulting and Clinical Psychology, 1*, 6-17.

Hart, S. D. (1998). The role of psychopathy in assessing risk for violence: Conceptual and methodological issues. *Legal and Criminological Psychology, 3*, 121-137.

Hart, S. D., & Dempster, R. J. (1997). Impulsivity and psychopathy. In C. D. Webster & M. A. Jackson (Eds.), *Impulsivity: Theory, assessment and treatment,* (pp. 212-232). New York: Guilford Press.

Hart, S. D., Kropp, P. R., & Hare, R. D. (1988). Performance of male psychopaths following conditional release from prison. *Journal of Consulting and Clinical Psychology, 56*, 227-232.

Hemphill, J. F., Templeman, R., Wong, S., & Hare, R. D. (1998). Psychopathy and crime: Recidivism and criminal careers. In D. J. Cooke, A. E. Forth, & R. D. Hare (Eds.), *Psychopathy: Theory, research and implications for society: NATOASI series D: Behavioral and social sciences: Vol. 88*, (pp. 375–399). Netherlands: Kluwer Academic Publishers.

Hervé, H., Mitchell, D. G., Cooper, B. S., Spidel, A., & Hare, R. D. (2004). Psychopathy
and unlawful confinement: An examination of perpetrator and event
characteristics. *Canadian Journal of Behavioural Science, 36*, 137-145.

Hicks, B. M., Vaidyanathan, U., & Patrick, C. J. (2010). Validating female psychopathy
subtypes: Differences in personality, antisocial and violent behaviour, substance
abuse, trauma, and mental health. *Personality Disorders: Theory, Research, and
Treatment, 1,* 38-57.

Hill, C., Neumann, C. S., & Rogers, R. (2004). Confirmatory factor analysis of the
psychopathy checklist: screening version in offenders with Axis I disorders.
Psychological Assessment, 16, 90-95.

Hoyle, R. H., & Smith, G. T. (1994). Formulating clinical research hypotheses as
structural equation models: A conceptual overview. *Journal of Consulting and
Clinical Psychology, 62*, 429-440.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure
analysis: Conventional criteria versus new alternatives. *Structural Equation
Modeling, 6*, 1-55.

Hu, L., Bentler, P. M., & Kano, Y. (1992). Can test statistics in covariance structure
analysis be trusted? *Psychological Bulletin , 112*, 351-362.

Jackson, R. L., Rogers, R., Neumann, C. S., & Lambert, P. L. (2002). Psychopathy in
female offenders: An investigation of its underlying dimensions. *Criminal Justice &
Behavior, 29,* 692-704.

Joe, K. & Chesney-Lind, M. (1995). Just every mother's angel; an analysis of gender
and ethnic variations in youth gang membership. *Gender and Society, 9,* 408-430.

Jones, S., Cauffman, E., Miller, J. D., & Mulvey, E. (2006). Investigating different factor structures of the Psychopathy Checklist: Youth Version: Confirmatory factor analytic findings. *Psychological Assessment, 18,* 33-48.

Jonkman, L. M. (2006). The development of preparation, conflict monitoring, and inhibition from early childhood to young adulthood; a Go/Nogo ERP study. *Brain Research, 1097*, 181-193.

Juodis, M., Woodworth, M., Porter, S., ten Brinke, L. (2009). Partners in crime: A comparison of individual and multi-perpetrator homicides. *Criminal Justice and Behavior, 36*, 824-839.

Karpman, B. (1949). The psychopathic delinquent child. *American Journal of Orthopsychiatry, 20*, 223-265.

Kerig, P. K., & Stellwagen, K. K. (2010). Roles of callous unemotional traits, narcissism, and machiavellianism in childhood aggression. *Journal of Psychopathology and Behavioral Assessment, 32*, 343-352.

Kline, R. B. (1998). Software programs for structural equation modeling: Amos, EQS, and LISREL. *Journal of Psychoeducational Assessment, 16,* 343-364.

Kosson, D. S., Cyterski, T. D., Steuerwald, B. L., Neumann, C. S., & Walker-Matthews, S. (2002). The reliability and validity of the Psychopathy Checklist: Youth Version in non-incarcerated adolescent males. *Psychological Assessment, 14*, 97-109.

Kosson, D. S., Smith, S. S., & Newman, J. P. (1990). Evaluating the construct validity of psychopathy on Black and White male inmates: Three preliminary studies. *Journal of Abnormal Psychology, 99*, 250-259.

Kotler, J. S., McMahon**,** R. J. (2010). Assessment of child and adolescent psychopathy. In R. T. Salekin, & D. R. Lynam (Eds.), *Handbook of child adolescent psychopathy*, (pp. 79-109). New York, NY, US: Guilford Press.

Kruh, I. P., Frick, P. J., & Clements, C. B. (2005). Historical and personality correlates to the violence of juveniles tried as adults. *Criminal Justice and Behavior, 32*, 69-96.

Leistico, A. R., Salekin, R. T., DeCoster, J., & Rogers, R. (2008). A large-scale meta-analysis relating the Hare measures of psychopathy to antisocial conduct*. Law and Human Behavior*, *32*, 28-45.

Leschied, A. W., Cummings, A. L., Van Brunschot, M., Cunningham, A., & Saunders, A. (2001). A review of the literature on aggression in adolescent girls: Implications for policy, prevention and treatment. *Canadian Psychology, 42*, 200-215.

Levene, K. S., Madsen, K. C. & Pepler, D. J. (2005). Girls growing up angry: A qualitative study. In D. J. Pepler, K. C. Madsen, C. Webster, & K. S. Levene (Eds.), *The development and treatment of girlhood aggression.* New Jersey: Lawrence Erlbaum.

Lilienfeld, S. O. (1994). Conceptual problems in the assessment of psychopathy. *Clinical Psychology Review*, *14*, 17-38.

Lindberg, N., Laajasalo, T., Holi, M., Putkonen, H., Weizmann-Henelius, G., & Häkkänen-Nyholm, H. (2009). Psychopathic traits and their associations with offence-, victim-, and offender characteristics in a nationwide consecutive sample of homicidal male adolescents between 1995-2004. *BMC Psychiatry, 9,* 18.

Linhart, H., & Zucchini, W. (1986). *Model Selection.* New York: Wiley.

Lynam, D. R. (1996). Early identification of chronic offenders: Who is the fledgling psychopath? *Psychological Bulletin, 120*, 209-234.

Lynam, D. R. (1998). Early identification of the fledgling psychopath: Locating the psychopathic child in the current nomenclature. *Journal of Abnormal Psychology, 107,* 566-575.

Lynam, D. R. (2002). Psychopathy from the perspective of the five-factor model of personality. In P. T. Costa & T. A. Widiger (Eds.), *Personality disorders and the Five-factor model of personality,* (pp. 325–348). Washington, DC: American Psychological Association.

Lynam, D. R., Caspi, A., & Moffitt, T. E. (2007). Longitudinal evidence that psychopathy scores in early adolescence predict adult psychopathy. *Journal of Abnormal Psychology, 116,* 155-165.

Lynam, D. R., Charnigo, R., Moffitt, T. E., Raine, A., Loeber, R., & Stouthamer-Loeber, M. (2009). The stability of psychopathy across adolescence. *Development and Psychopathology, 21*, 1133-1153.

Lynam, D. R., & Gudonis, L. (2005). The development of psychopathy. *Annual Review of Clinical Psychology, 1*, 381-407.

Marsee, M. A., & Frick, P. J. (2007). Exploring the cognitive and emotional correlates toproactive and reactive aggression in a sample of detained girls. *Journal of Abnormal Child Psychology, 35*, 969-981.

Marsee, M. A., Silverthorn, P., & Frick, P. J. (2005). The association of psychopathic traits with aggression and delinquency in non-referred boys and girls. *Behavioral Sciences & the Law, 23*, 803-817.

Marshall, J., Egan, V., English, M., & Jones, R. M. (2006). The relative validity of psychopathy versus risk/needs-based assessments in the prediction of adolescent offending behaviour. *Legal and Criminological Psychology, 11,* 197-210.

McCord, W., & McCord, J. (1956/1964). *The psychopath: An essay on the criminal mind.* Princeton, NJ: Van Nostrand.

McDermott, P. A., Alterman, A. I., Cacciola, J. S., Rutherford, M. J., Newman, J. P., & Mulholland, E. M. (2000). Generality of Psychopathy Checklist--Revised factors over prisoners and substance-dependent patients. *Journal of Consulting & Clinical Psychology, 68*, 181-186.

Meloy, J. R. (2006). Empirical basis and forensic application of affective and predatory violence. *Australian and New Zealand Journal of Psychiatry, 40,* 539-547.

Miller, J. D., Lynam, D. R.,Widiger, T. A., & Leukefeld, C. (2001). Personality disorders as extreme variants of common personality dimensions. Can the Five-factor model of personality adequately represent psychopathy? *Journal of Personality, 69,* 253-276.

Moretti, M. M., Catchpole, R. E. H., & Odgers, C. (2005). The dark side of girlhood: Recent trends, risk factors and trajectories to aggression and violence. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 14*, 21-25.

Murrie, D. C., Boccaccini, M. T., McCoy, W., & Cornell, D. C. (2007). Diagnostic labeling in juvenile court: How do descriptions of psychopathy and conduct disorder influence judges? *Journal of Clinical Child and Adolescent Psychology, 36,* 228-241.

Murrie, D. C., Cornell, D. G., Kaplan, S., McConville, D., & Levy-Elkon, A. (2004). Psychopathy scores and violence among juvenile offenders: a multi-measure study. *Behavioral Science & Law, 22*, 49-67.

Neumann, C. S., Kosson, D. S., Forth, A. E., & Hare, R. D. (2006). Factor structure of the Hare Psychopathy Checklist: Youth Version (PCL:YV) in incarcerated adolescents. *Psychological Assessment, 18,* 142-154.

Neumann, C. S., Vitacco, M. J., Hare, R. D., & Wupperman, P. (2005). Re-construing the "reconstruction" of psychopathy: A comment on Cooke, Michie, Hart, & Clark. *Journal of Personality Disorders, 19,* 624–640.

Nicholls, T. L., Ogloff, J. R. & Douglas, K. S. (2004). Assessing risk for violence among male and female civil psychiatric patients: The HCR-20, PCL: SV, and VSC. *Behavioral Sciences and the Law, 22*, 167-184.

Nicholls, T. L. & Petrila, J. (2005). Gender and psychopathy: An overview of important issues and the introduction to the special issue. *Behavioral Sciences and the Law, 23*, 729-741.

Nouvion, S. O., Cherek, D. R., Lane, S. D., Tcheremissine, O. V., & Lieving, L. M. (2007). Human proactive aggression: Association with personality disorders and psychopathy. *Aggressive Behavior, 33,* 552-562.

Odgers, C., Moretti, M., & Reppucci, N.D. (2005) Examining the science and practice of violence risk assessment with female adolescents. *Law and Human Behavior, 29*, 7-27.

Odgers, C., & Moretti, M. (2002). Aggressive and antisocial girls: Research update and challenges. *International Journal of Forensic Mental Health, 2,* 17-33.

Ostrov, J. M., & Keating, C. F. (2004). Gender differences in preschool aggression during free play and structured interactions: An observational study. *Social Development, 13*, 255-275.

Pardini, D. P., Lochman, J. E., & Frick, P. J. (2003). Callous-unemotional traits and social cognitive processes among adjudicated youths. *Journal of the American Academy of Child and Adolescent Psychiatry*, *42,* 364-371.

Penney, S. R., & Moretti, M. M. (2007). The relation of psychopathy to concurrent aggression and antisocial behavior in high-risk adolescent girls and boys. *Behavioral Sciences & the Law, 25*, 21-41.

Pepler, D. J., & Sedighdeilami, F. (1998) *Aggressive girls in Canada.* W-98-30E. Ottawa, Ontario: Applied Research Branch of Strategic Policy, Human Resources Development Canada.

Porter, G. (2000). *Detention and delinquency cases, 1988-1997*. Washington, DC: Office of Juvenile Justice and Delinquency Prevention.

Porter, S., Birt, A., & Boer, D. P. (2001). Investigation of the criminal and conditional release profiles of Canadian federal offenders as a function of psychopathy and age. *Law and Human Behavior, 25,* 647-661.

Porter, S., ten Brinke, L., & Wilson, K. (2009). Crime profiles and conditional release performance of psychopathic and non-psychopathic sexual offenders. *Legal and Criminological Psychology, 14,* 109-118.

Porter, S., & Woodworth, M. (2006). Psychopathy and aggression. In C. Patrick (Ed.), *Handbook of psychopathy,* (pp. 481-494). New York: Guilford Press.

Porter, S., & Woodworth, M. (2007). 'I'm sorry I did it…but he started it': A comparison

of the official and self-reported homicide descriptions of psychopaths and nonpsychopaths. *Law and Human Behavior, 31,* 91-107.

Porter, S., Woodworth, M., Earle, J., Drugge, J. & Boer, D. (2003). Characteristics of sexual homicides committed by psychopathic and non-psychopathic offenders. *Law and Human Behaviour, 27*, 459-470.

Prinstein, M. J., & Cillessen, A. H. N. (2003). Forms and functions of adolescent peer aggression associated with high levels of peer status. *Merrill-Palmer Quarterly, 49*, 310-342.

Puzzanchera, C., Stahl, A. L., Finnegan, T. A., Tierney, N., & Snyder, H. N. (2003). *Juvenile Court Statistics 1998.* Washington, DC: Office of Juvenile Justice and Delinquency Prevention.

Raine, A., Dodge, K., Loeber, R., Gatzke-Kopp, L., Lynam, D., Reynolds, C., Stouthamer-Loeber, M., & Liu, J. (2006). The reactive–proactive aggression questionnaire: Differential correlates of reactive and proactive aggression in adolescent boys, *Aggressive Behavior, 32*, 159-171.

Reise, S. P. (1999). Personality measurement issues through the eyes of IRT. In S. E. Embretson & S. L. Hershberger (Eds.), *New rules of measurement: What every psychologist and educator should know,* (pp. 219-241). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Rice, M. E., Harris, G. T., & Quinsey, V. L. (1990). A follow-up of rapists assessed in a maximum security psychiatric facility. *Journal of Interpersonal Violence, 5*, 435-440.

Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality

    traits from childhood to old age: A quantitative review of longitudinal studies.

    Psychological Bulletin, 126, 3-25.

Rockett, J., Murrie, D. C., & Boccaccini, M. T. (2007). Diagnostic labeling in juvenile

    justice settings: Do psychopathy and conduct disorder findings influence

    clinicians? *Psychological Services, 4,* 107-122*.*

Rogstad, J. E., & Rogers, R. (2008). Gender differences in contributions of emotion to

    psychopathy and antisocial personality disorder. *Clinical Psychology Review, 28*,

    1472-1484.

Salekin, R. T. (2006). Psychopathy in children and adolescents: Key issues in

    conceptualization and assessment. In C.Patrick (Ed.), *Handbook of psychopathy,*

    (pp. 389-414). New York: Guilford Press.

Salekin, R. T., Brannen, D. N., Zalot, A. A., Leistico, A., & Neumann, C. S. (2006).

    Factor structure of psychopathy in youth: Testing the applicability of the new four-

    factor model. *Criminal Justice and Behavior, 33*, 135-157.

Salekin, R. T., Debus, S. A. & Barker, E. D. (2010). Adolescent psychopathy and the

    five factor model: Domain and facet analysis. *Journal of Psychopathology and*

    Behavioral Assessment, *32*, 501-514.

Salekin, R. T. & Frick, P. J. (2005). Psychopathy in children and adolescents: The need

    for a developmental perspective. *Journal of Abnormal Child Psychology: An official*

    publication of the International Society for Research in Child and Adolescent

    Psychopathology, 33, 403-409.

Salekin, R. T., Rogers, R., & Sewell, K. W. (1996). A review and meta-analysis of the Psychopathy Checklist and Psychopathy Checklist – Revised: Predictive validity of dangerousness. *Clinical Psychology: Science and Practice, 3*, 203-213.

Salekin, R. T., Rogers, R., & Sewell, K. W. (1997). Construct validity of psychopathy in a female offender sample: A multitrait-multimethod evaluation. *Journal of Abnormal Psychology, 106*, 576-585.

Salekin, R. T., Rogers, R., Ustad, K. L., & Sewell, K. W. (1998). Psychopathy and recidivism among female inmates. *Law and Human Behavior, 22*, 109-126.

Salekin, R. T., Rosenbaum, J., & Lee, Z. (2008). Child and adolescent psychopathy: Stability and change. *Psychiatry, Psychology, and Law, 15*, 224-236.

Savioe, J. (2000). *Youth violent crime statistics Canada Catalogue.* No. 85-002-XPE, Vol. 19, no. 3. Ottawa, ON: Canadian Centre for Justice Statistics.

Schmidt, F., McKinnon, L., Chattha, H. K., & Brownlee, K. (2006). Concurrent and predictive validity of the Psychopathy Checklist: Youth Version across gender and ethnicity. *Psychological Assessment, 18*, 393-401.

Schmitt, W. A., & Newman, J. P. (1998). Passive avoidance in psychopathic offenders: A replication and extension*. Journal of Abnormal Psychology, 107*, 527-532.

Schrum, C. L. & Salekin, R. T. (2006). Psychopathy in adolescent female offenders: An item response theory analysis of the Psychopathy Checklist: Youth Version. *Behavioral Sciences and the Law, 24*, 39-63.

Seagrave, D., & Grisso, T. (2002). Adolescent development and the measurement of juvenile psychopathy. *Law & Human Behavior, 26*, 219-239.

Serin, R. C. (1990). Psychopathy and violence in criminals. *Journal of Interpersonal Violence, 6,* 423-431.

Serin, R. C. (1993). Diagnosis of psychopathology with and without an interview. *Journal of Clinical Psychology, 49*, 367-372.

Sevecke, K., Lehmkuhl, G., & Krischer, M. K. (2009). Examining relations between psychopathology and psychopathy dimensions among adolescent female and male offenders. *European Child and Adolescent Psychiatry, 18*, 85-95.

Sevecke, K., Pukrop, R., Kosson, D. S., & Krischer, M. K. (2009). Factor structure of the Hare Psychopathy Checklist: Youth Version in German female and male detainees and community adolescents. *Psychological Assessment, 21*, 45-56.

Sharp, C., & Kine, S. (2008). The assessment of juvenile psychopathy: Strengths and weaknesses of currently used questionnaire measures*. Child and Adolescent Mental Health, 13*, 85-95.

Skeem, J. L., & Cauffman, E. (2003). Views of the downward extension: Comparing the Youth Version of the Psychopathy Checklist with the Youth Psychopathic Traits Inventory. *Behavioral Sciences & the Law, 21,* 737-770.

Skeem, J. L., & Cooke, D. J. (2010). Is criminal behavior a central component of psychopathy? Conceptual directions for resolving the debate. *Psychological Assessment, 22*, 433-445.

Steinberg, L., Albert, D., Cauffman, E., Banich, M., Graham, S., & Woolard, J. (2008). Age differences in sensation seeking and impulsivity as indexed by behavior and self-report: Evidence for a dual systems model. *Developmental Psychology, 44*, 1764-1778.

Stockdale, K. C., Olver, M. E., Wong, S. C. P. (2010). The Psychopathy Checklist: Youth Version and adolescent and adult recidivism: Considerations with respect to gender, ethnicity, and age. *Psychological Assessment, 22*, 768–781.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics, 5th ed*. Boston: Allyn and Bacon.

Thomaes, S., Stegge, H., Bushman, B. J., & Olthof, T. (2008). Trumping shame by blasts of noise: Narcissism, self-esteem, shame, and aggression in young adolescents. *Child Development, 79*, 1792-1801.

Thomas, J. (2005). Youth Court Statistics 2003/2004. *Juristat, 25*(4) (Cat. No. 85-002-XPE). Ottawa, ON: Statistics Canada.

Vasey, M. W., Kotov, R., Frick, P. J., & Loney, B. R. (2005). The latent structure of psychopathy in youth: A taxometric investigation. *Journal of Abnormal Child Psychology, 33,* 411-429.

Verona, E. & Vitale, J. (2006). Psychopathy in women: Assessment, manifestations, and etiology. In C.J. Patrick (Ed.), *Handbook of the psychopathy*, (pp.415-436). New York, NY: Guilford Press.

Viding, E., Jones, A. P., Frick, P. J., Moffitt, T. E., & Plomin, R. (2008). Heritability of antisocial behaviour at 9: Do callous–unemotional traits matter? *Developmental Science, 11*, 17–22.

Vincent, G. M., & Hart, S. D. (2002). Psychopathy in childhood and adolescence: Implications for the assessment and management of multi-problem youths. In R. R. Corrado, R. Roesch, S. D. Hart, & J. K. Gierowski (Eds.), *Multi-problem violent*

youth: A foundation for comparative research on needs, interventions and outcomes, (pp. 150–163). Amsterdam: IOS Press.

Vitacco, M. J., Caldwell, M. F., Van Rybroek, G. J., & Gabel, J. (2007). Psychopathy and behavioral correlates of victim injury in serious juvenile offenders. *Aggressive Behavior, 33*, 537-544.

Vitacco, M. J., Neumann, C. S., Caldwell, M. F., Leistico, A-M., & Van Rybroek, G. J. (2006). Testing factor models of the Psychopathy Checklist: Youth Version and their association with instrumental aggression. *Journal of Personality Assessment, 87,* 74-83.

Vitacco, M. J., Neumann, C. S., & Jackson, R. L. (2005). Testing a four-factor model of psychopathy and its association with ethnicity, gender, intelligence, and violence. *Journal of Consulting and Clinical Psychology, 73,* 466-476

Vitacco, M. J., Rogers, R., Neumann, C. S., Harrison, K. S., & Vincent, G. (2005). A comparison of factor models on the PCL–R with mentally disordered offenders: The development of a four-factor model. *Criminal Justice and Behavior, 32,* 526-545.

Vitale, J. E., Brinkley, C. A., Hiatt, K. D., & Newman, J. P. (2007). Abnormal selective attention in psychopathic female offenders. *Neuropsychology, 21,* 301-312.

Vitale, J. E., MacCoon, G. D., & Newman, J. P. (2011). Emotion facilitation and passive avoidance learning in psychopathic female offenders. *Criminal Justice and Behavior, 20*, 1-18.

Vitale, J. E., & Newman, J. P. (2001). Using the Psychopathy Checklist-Revised with female samples: Reliability, validity, and implications for clinical utility. *Clinical Psychology: Science Practice, 8*, 117-132.

Vitale, J. E., Smith, S. S., Brinkley, C. A., & Newman, J. P. (2002). Reliability and construct validity of the Psychopathy Checklist-Revised in female offenders. *Criminal Justice and Behavior, 29*, 202-231.

Walsh, Z. T., & Kosson, D. S. (2007). Psychopathy and violent crime: A prospective study of the influence of socioeconomic status and ethnicity. *Law and Human Behavior, 31*, 209-229.

Walsh Z. T., Swogger M. T., & Kosson D. S. (2009). Psychopathy and instrumental violence: Facet-level relationships. *Journal of Personality Disorders, 23*, 416-424.

Walters, G. D. (2003). Predicting institutional adjustment and recidivism with the Psychopathy Checklist factor scores: A meta-analysis. *Law and Human Behavior, 27*, 541-558.

Warren, J. I., Burnette, M. L., South, S. C., Chauhan, P., Bale, R., Friend, R., & Van Patten, I. (2003). Psychopathy in women: Structural modeling and comorbidity. *International Journal of Law & Psychiatry, 26*, 223-242.

Warren, G., & Clarbour, J. (2009). The relationship between psychopathy and indirect aggression use in a non-criminal population. *Aggressive Behavior*, 35, 1-14.

Warren, J. I., South, S. C., Burnette, M., Rogers, A., Friend, R., Bale, R, & Van Patten, I. (2005). Understanding the risk factors for violence and criminality in women: The concurrent validity of the PCL-R and HCR-20. *International Journal of Law & Psychiatry, 28*, 269-289.

Waschbusch, D. A., & Willoughby, M. T. (2008). Attention-deficit/hyperactivity disorder and callous-unemotional traits as moderators of conduct problems when examining impairment and aggression in elementary school children. *Aggressive Behavior, 34,* 139-153.

Washburn, J. J., McMahon, S. D., King, C. A., Reinecke, M. A., & Silver, C. (2004). Narcissistic features in young adolescents: Relations to aggression and internalizing symptoms. *Journal of Youth and Adolescence, 33*, 247–260.

Weizmann-Henelius, G., Putkonen, H., Grönroos, M., Lindberg, N., Eronen, E., & Häkkänen-Nyholm, H. (2010). Examination of Psychopathy in Female Homicide Offenders - Confirmatory Factor Analysis of the PCL-R. *International Journal of Law and Psychiatry, 33*, 177-83.

Widiger, T. A., & Lynam, D. R. (1998). Psychopathy and the five-factor model of personality. In T.Millon, E.Simonsen, M.Birket-Smith, & R. D.Davis (Eds.), *Psychopathy: Antisocial, criminal, and violent behaviour,* (pp. 171-187). New York: Guilford Press.

Williamson, S., Hare, R. D., & Wong, S. (1987): Violence: Criminal psychopaths and their victims. *Canadian Journal of Behavioral Science, 19*, 454-462.

Wong, S. (1984). *The criminal and institutional behaviours of psychopaths* (No. 1984-87). Ontario, Ottawa, Canada: Ministry of the Solicitor General of Canada.

Wong, S. (1988). Is Hare's Psychopathy Checklist reliable without the interview? *Psychological Reports, 62*, 931-934.

Woodworth, M., & Porter, S. (2002). In cold blood: Characteristics of criminal homicides as a function of psychopathy. *Journal of Abnormal Psychology, 103,* 604-609.

Xie, H., Cairns, R. B., & Cairns, B. D. (2002). The development of social aggression and

physical aggression: A narrative analysis of interpersonal conflicts. *Aggressive*

Behavior, 28, 341-355.

Appendices

Appendix A: PCL:YV Items

1. Impression management

2. Grandiose sense of self-worth

3. Stimulation seeking

4. Pathological lying

5. Manipulation for personal gain

6. Lack of remorse

7. Shallow affect

8. Callous/lack of empathy

9. Parasitic orientation

10. Poor anger control

11. Impersonal sexual behaviour

12. Early behavior problems

13. Lacks goals

14. Impulsivity

15. Irresponsibility

16. Failure to accept responsibility

17. Unstable interpersonal relationships

18. Serious criminal behaviour

19. Serious violations of conditional release

20. Criminal versatility

Appendix B: Factor Models

Table A1

Factor models.

Hare's (2003) two-factor Model		Cooke & Michie's (2001) three-factor Model		Hare's (2003) four-facet Model	
Interpersonal/Affective (I)	1. Impression management 2. Grandiose sense of self-worth 4. Pathological lying 5. Manipulation for personal gain 6. Lack of remorse 7. Shallow affect 8. Callous/ lack of empathy 16. Failure to accept responsibility	**Arrogant, Deceptive Interpersonal Style (I)**	1. Impression management 2. Grandiose sense of self-worth 4. Pathological lying 5. Manipulation for personal gain	**Interpersonal (I)**	1. Impression management 2. Grandiose sense of self-worth 4. Pathological lying 5. Manipulation for personal gain
		Deficient Affective Experience (II)	6. Lack of remorse 7. Shallow affect 8. Callous/lack of empathy 16. Failure to accept responsibility	**Affective (II)**	6. Lack of remorse 7. Shallow affect 8. Callous/lack of empathy 16. Failure to accept responsibility
Socially Deviant Lifestyle (II)	3. Stimulation seeking 9. Parasitic orientation 13. Lacks goals 14. Impulsivity 15. Irresponsibility 10. Poor anger control 12. Early behaviour problems 18. Serious criminal behaviour 19. Serious violations of conditional release	**Impulsive, Interpersonal Behaviour (III)**	3. Stimulation seeking 9. Parasitic orientation 13. Lacks goals 14. Impulsivity 15. Irresponsibility	**Lifestyle (III)**	3. Stimulation seeking 9. Parasitic orientation 13. Lacks goals 14. Impulsivity 15. Irresponsibility
				Antisocial (III)	10. Poor anger control 12. Early behaviour problems 18. Serious criminal behaviour 19. Serious violations of conditional release 20. Criminal versatility

Appendix C: YFPS Ethics Approval

BRITISH COLUMBIA | Ministry of Children and Family Development

August 20, 2010

Erin Hutton, B. A.
Unit 411 – 539 Yates Road
Kelowna, British Columbia
V1V 2T8

Dr. Heather Gretton (Director, Program Evaluation and Research)
Youth Forensic Psychiatric Services
Burnaby, British Columbia

Dear. Ms. Hutton,

The Youth Forensic Psychiatric Services (YFPS) Program Evaluation and Research Committee has had an opportunity to review the research proposal, "Female Youth Psychopathy and Aggression: Testing Factor Models of the Psychopathy Checklist: Youth Version and Their Association with Instrumental Aggression." We are pleased to inform you that the PER Committee has approved your project in the manner described in your application, follow-up letter, and related materials. Please coordinate your research activities directly with Dr. Heather Gretton. Dr. Gretton will facilitate your access to file records, a secure storage room, which files must be placed in while not in use, and a workspace for you to use while coding. All coding must be completed on YFPS property, in the workspace designated by YFPS.

PER requires quarterly updates regarding the status of your project. We will anticipate an update from you in November, 2010. Updates can be submitted through Dr. Robert Clift. Any changes to your proposed project methodology will require an addendum and additional review. We also require that you submit the names, Curriculum Vitaes, criminal record checks, and confidentiality agreements of any assistants working on the project. These will need to be updated if assistants change during the course of the project.

In exchange for the financial costs that will be incurred by YFPS in the administration of your study (and have been incurred in the scoring of previous tests), you have agreed to/will be expected to code 80 female youth files on SAVRY, YLS, background and supplemental treatment information, and supply YFPS with this date.

When your project is completed you will be asked to provide us with a copy of your findings and make a presentation to the service.

This approval expires on August 17, 2012. You may request an extension at that time if you require additional time to complete this project.

On behalf of the PER Committee, we wish you all the best as you pursue your research activities. We remind you that your project will need further approval from Mr. Alan Markwart, Senior Executive Director, Provincial Services, in order to proceed. Mr. Markwart's approval is essential in order to gain access to disclosable YFPS and CORNET records. A further application, to Youth Justice Court, is required to review historical records that are not otherwise accessible. We look forward to learning more about your findings following successful completion of the project.

Sincerely,

Dr. M. Louise Clark
Program Evaluation and Research

On behalf of:
Heather Gretton, Ph.D., R. Psych.
Program Evaluation and Research
Youth Forensic Psychiatric Services

MLC:jw

Appendix D: MCFD Ethics Approval

BRITISH COLUMBIA

Ref: 195053

17 September, 2010

Erin Hutton
Master of Arts Student
Psychology and Computer Sciences (Unit 4)
Irving K. Barber School of Arts and Sciences
University of British Columbia -- Okanogan
3333 University Way
Kelowna, BC V1V 1V7

Dear Ms. Hutton:

This letter is to confirm that I have considered your proposal for research regarding Female Youth Psychopathy and Aggression. This research has been approved by the PER Committee and does not require direct contact with participants. You are requesting access to approximately 150 YFPS files and YFPS has already stated its approval until 17 August 2012.

Pursuant to Order in Council 0267/03, as Provincial Director, I hereby authorize you and your research team to access disclosable YFPS records for your research purposes until 17 August 2012. As you are already aware, I can only authorize your access to records that are considered active and accessible according to Sec.119 YCJA. You will have to make an application to the youth justice court to access those historical records that are otherwise inaccessible. You will have to consider the YCJA parameters when your research team is reviewing historic YFPS files that are no longer legally accessible and ensure you apply to the youth court for access to those files.

Good luck with your research and I look forward to the results.

Sincerely,

Alan Markwart
Senior Executive Director

Appendix E: Coding Scheme and Guide

Coder	
Date	
Subject ID	
Date of Birth (YYYY-MM-DD)	
Aboriginal (0=No; 1=Yes)	

A. OFFENCE CHARACTERISTICS AND HISTORY							NOTES
Index Offence Characteristics							
Age at Index Offence*						Months	
Index Offence	**1** = Violent **2** = Non-violent **3** = Sexual **4** = Violent & Sexual						
Victim Gender(s)	**0** = Male **1** = Female **2** = Both						
Victim Age(s)	**0** = Child (0=12) **1** = Adolescent (13-17) **2** = Adult (18+) **3** = Mixed						
Threats	**0** = No **1** = Yes						
Weapon	**0** = None **1** = Possession **2** = Threaten **3** = Use						
Type of Weapon	**0** = N/A **1** = Object **2** = Knife **3** = Gun **4** = Chemical Spray						
Location	**1** = Youth's home **2** = Other residence **3** = School/work **4** = Public **5** = Mixed						
Weapon Obtained By	**1** = Opportunity **2** = Choice **3** = Unclear						
Victim-Offender							
Severity of Violence*						1. 2.	
Intoxication*							
Offence History							
Age at first contact with police*						Months	
Age at first charged offence*						Months	
Victim Gender(s) (check ✓)	**Hx1:** M:_____ F:_____	**Hx 2** M:_____ F:_____	**Hx 3** M:_____ F:_____	**Hx 4** M:_____ F:_____	**Hx 5** M:_____ F:_____	**Hx 6** M:_____ F:_____	

B. AGGRESSION RATING FORM (ARF)								NOTES
Is this characteristic present?* (No = **0** Yes = **1**)	**INDEX**	**Hx1**	**Hx2**	**Hx3**	**Hx4**	**Hx5**	**Hx6**	
A. Planning or preparation before the aggression								
B. Goal directed - the act helped obtain a specific and identifiable goal								
C. Aggressive behaviour was unprovoked by the victim								
D. Lack of anger during the aggression								
E. Victim of the aggression was a stranger								

C. WOODWORTH & PORTER'S INSTRUMENTAL-REACTIVE CONTINUUM			NOTES
	INDEX	**Hx1**	
1 = Purely Reactive* **3** = Instrumental/Reactive* **2** = Reactive/Instrumental* **4** = Purely Instrumental* **0** = Not enough information to determine			
Specific type of instrumental violence*			

Index Offence (describe briefly; include date offence was committed)	**History** (describe briefly; include date offence was committed) Hx1 Hx2 Hx3 Hx4 Hx5 Hx6

PART A: OFFENCE CHARACTERISTICS AND HISTORY

Index Offence
The index offence is the offence(s) that led to the most recent referral to Youth Forensic Psychiatric Services. The following codes should be given based on what the youth was originally **charged** with (i.e., not the offence they were convicted for):

1 = Violent
2 = Non-violent
3 = Sexual
4 = Violent and Sexual

Classify the offence using the BC Corrections Coding Sheet. The index offence doesn't necessarily have to be only one offence. The youth may have committed more offences for which he/she is assessed, and all of them should be treated as index offences. It is of crucial importance to accurately classify the index offence.

Age at Index Offence
Refers to the date when index offence actually happened – not when it was investigated, or charged, etc. This item is coded in months. If the index offence happened over a longer period of time (e.g., a couple of years), code the youth's age at the beginning of the offending behaviour (the beginning of that period).

Victim-Offender Relationship (if 2 or more victims, code highest)
5 = Very close relationship (immediate family member, romantic partner)
4 = Close relationship (friend, relative, dating partner, etc.)
3 = Specific relationship (teacher, babysitter, etc.) or between friend and acquaintance
2 = Acquaintance
1 = Stranger

Severity of violence (First Column; consider actual harm to victim, not youth's intention)
7 - Extreme homicide (e.g., multiple victims or multiple fatalities, mutilation)
6 - Homicide
5 - Severe injury (e.g., lasting impairment or life-threatening injury, some rapes)
4 - Serious injury, requiring substantial hospital treatment (e.g., broken limb, rape, gunshot)
3 - Minor injury (e.g., bruises, minor medical treatment, attempted rape)
2 - Assault without injury
1 - No assault (e.g., threatened with weapon)

Severity of violence (Second Column)
2 - Physical violence with weapon use   **1** -Physical violence used, no weapon use   **0** -No physical violence used

Intoxication

Code whether the youth was intoxicated at the time of the offense. Consider alcohol and other minor and major drugs. The primary concern is the degree to which the person is impaired or has clouded consciousness. Consider how much intoxication played a role in the offender`s actions. When coding this item, consider the youth`s prior experience with the substance they were using at the time of the offense. For example, a youth with no experience may become severely intoxicated after one or two drinks (score of 4 given) whereas another youth with more experience, and therefore greater tolerance, would not be intoxicated (score of 1 given).

4 = Severe intoxication (very impaired)
3 = Intoxicated
2 = Mild intoxication
1 = Not intoxicated
0 = No alcohol or drug involvement

Age at first contact with police

This item refers to the youth's age at the time they were they were first in contact with police (i.e., the youth may have been stopped by police or given a warning for some behaviour). This contact did not lead to any charges. If the index is the youth's first contact with police, than the age for this variable will be the same as the age for the index offense. This item is coded in months.

Age at first charged offence

This item refers to the youth's age at the time they committed an offence for which they were formally charged. Do not include offences for which the youth was not charged. This item is coded in months.

PART B: AGGRESSION RATING FORM

The ARF is a violence coding scheme that was specifically designed to assess the continuum between instrumental and reactive aggression in juvenile offenders. The ARF assesses five distinct behavioural domains including:

a) planning or preparation before the aggression
b) goal directed - the act helped obtain a specific and identifiable goal (e.g., money)
c) the aggressive behavior was unprovoked by the victim
d) lack of anger during the aggression
e)   the victim of the aggression was a stranger

Each of these five items should be answered YES or NO for all violent incidents that have been adequately reported in the file. To be considered adequate, the incident should be explained in a police report, any psychological, psychiatric, or psychosocial report or assessment, custody records, or YFPS clinician`s notes. Self-reported incidents (e.g., by perpetrator or victim) should only be coded if they have been corroborated or have been indicated as accurate by a credible source. If and when a self-reported statement is coded, please note that the information is based on self-report in the notes section of the coding sheet.

PART C: WOODWORTH & PORTER`S INSTRUMENTAL-REACTIVE CONTINUUM

Woodworth and Porter`s violence coding scheme is rated on a continuum from purely reactive to purely instrumental and includes these four dimensions:

1 = Purely reactive: In order for a violent act to be rated as purely reactive, there had to be strong evidence for a high level of spontaneity/impulsivity and a lack of planning surrounding the commission of the offense. Reactive violence should be coded if there is evidence for spontaneity or impulsivity, a rapid and powerful affective reaction prior to the act, and no apparent external goal other than to harm the victim immediately following a provocation/conflict.

> Example: An unknown victim verbally insulted the perpetrator, who in a rage immediately started a fight and proceeded to stab the victim with a weapon of "convenience" (e.g., a broken bottle in a bar).

2 = Reactive/Instrumental: To qualify for this rating, the violent act had to show evidence for both reactive and instrumental violence. However, the primary quality of the violence had to be reactivity.

> Example: Using the example above, the reactive/instrumental description would apply if after or during the unplanned fight, the perpetrator elected to rob the victim as well. Thus, the evidence would suggest that the violent act was unplanned/reactive but that there was also a secondary instrumental, opportunistic component.

3 = Instrumental/Reactive: To qualify for this rating, the violent act had to show evidence for both instrumental and reactive violence. However, the primary quality of the violence had to be instrumental.

> Example: An instrumental/reactive violent act would be coded if the offender started to commit a bank robbery but in the process proceeded to assault a bank teller after becoming agitated when the teller picked up a phone. In this case, a crime occurred for an obvious external gain, and the violence was part of this instrumental act. However, the violent act occurred as a reaction to unplanned events within the context of the crime.

4 = Purely Instrumental: For a violent act to be rated as purely instrumental, the offense had to have been clearly goal-oriented in nature with no evidence of an immediate emotional or situational provocation. The violent act had to have been committed for a clearly identifiable purpose other than "hot-blooded" spontaneous anger or a response to an immediate frustration. Therefore, a purely instrumental violent act should be coded if there was strong evidence that the violent act had been intentional, premeditated (nonimpulsive), motivated by a clear external goal such as drugs, money, to obtain sex or revenge, and not immediately following a potent affective reaction.

> Example: An offender may have carefully planned, carried out, and concealed a violent act in order to steal from the victim.

Specific type of instrumental violence

If a code of 2, 3, or 4 was given on the continuum (e.g. some evidence of instrumental violence), what was the primary reason for the use of instrumental violence:

1 = Monetary gain
2 = Drugs or alcohol (includes prescription drugs)
3 = Revenge/retribution
4 = A male (a fight over an affair or jealousy, or upset about ending of relationship)
5 = To obtain nonconsensual sex/Intentionally victimize a male or male/female child
6 = Other
7 = Unable to code

<u>**ARF Scoring**</u>

The rating of none, seldom, mixed, most, always given for each of the five ARF items (see Part B) will be determined by the following criteria:

RATING	CRITERIA NEEDED TO BE MET	EXAMPLE (for item a)
None	characteristic is present in 0% of aggressive acts	4 aggressive acts, 0 out of 4 (none) were prepared
Seldom	characteristic is present in 1-49% of aggressive acts	4 aggressive acts, 1 out of 4 were prepared
Mixed	characteristic is present in 50% of aggressive acts	4 aggressive acts, 2 out of 4 were prepared*
Most	characteristic is present in 51-99% of aggressive acts	4 aggressive acts, 3 out of 4 were prepared
Always	characteristic is present in 100% of aggressive acts	4 aggressive acts, 4 out of 4 (all) were prepared

* for an odd number of aggressive acts, this rating would not be employed