PSYCHOPATHY AND RECIDIVISM IN ADOLESCENCE: 
A TEN-YEAR RETROSPECTIVE FOLLOW-UP

by

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Abstract

Violent and aggressive behavior is a subset of antisocial behavior that is of particular concern to the criminal justice system and to the general public. A challenge facing mental health professionals and the criminal justice system is to assess—with a reasonable degree of accuracy—the likelihood that a young offender will recidivate and to arrange appropriate interventions. Because of its psychometric properties and high predictive validity, the Hare Psychopathy Checklist-Revised (PCL-R) is being incorporated into risk assessment batteries for use with adults. The purpose of the study was to extend the risk paradigm to adolescent offenders, investigating the predictive validity of the Psychopathy Checklist: Youth Version (PCL:YV) from adolescence to adulthood. Subjects were 157 admissions, ages 12-18, referred to Youth Court Services for psychological or psychiatric assessment. Archival data were used to complete retrospectively the PCL:YV and to code criminal history and demographic data on each of the subjects. Follow-up criminal record data were collected, with an average follow-up time of ten years. Over the follow-up period psychopaths demonstrated a greater risk for committing violent offences than nonpsychopaths. They committed violent offences at a higher rate, earlier following their release from custody, and were more likely to escape from custody than nonpsychopaths. Further, results indicate that PCL:YV score, a difference in performance – verbal intellectual functioning (P > V Index), and history of self-harm contributed significantly to the prediction of violent outcome, over and above the contribution of a combination of criminal-history and demographic variables. Finally, background and demographic characteristics were compared between violent and nonviolent psychopaths. Findings are discussed in the context of current conceptualizations of psychopathy and adolescent antisocial behavior.
# TABLE OF CONTENTS

Abstract ............................................................................................................. page ii.

Table of Contents ............................................................................................ page iii.

List of Tables .................................................................................................... page vii.

List of Figures ................................................................................................... page viii.

Acknowledgments ............................................................................................. page ix.

Dedication .......................................................................................................... page ix.

1. INTRODUCTION .......................................................................................... page 1.
   A. Objectives ................................................................................................... page 1.
   B. Background ............................................................................................... page 2.
      1. Psychopathy ............................................................................................. page 2.
      3. Recidivism and Violence ......................................................................... page 5.
   C. Purpose of Research .................................................................................. page 21.
   D. Summary of Predictions ............................................................................ page 22.

II. METHOD ........................................................................................................ page 24.
   A. Subjects .................................................................................................... page 24.
      Comparability between included and excluded subjects ......................... page 25.
   B. Procedures ............................................................................................... page 26.
(B). Modifications to the PCL-R for Use with Adolescents. ..... page 26.

(C). PCL:YV Group Definition ........................................ page 27.

2. Demographic and Family Background Variables .......... page 28.


(B). Conduct Disorder Symptoms ................................ page 28.

(C). Family Background ........................................ page 29.

(D). Intelligence Tests ........................................... page 29.

(E). Other Background Variables ................................ page 30

3. Outcome Variables ............................................. page 30.

(A). Years free in the community ............................... page 30.

(B). Any offences ................................................ page 30.


(E). Sexual Offences ........................................... page 32.

(F). Time in Custody and Response to

     Custody and Supervision ................................ page 32.

(G). Age Related Changes in Violent Offending .............. page 32.

(H). Survival Time to Violent Offence, Breach, or Escape page 32.

4. Data Analyses ................................................ page 33.

III. RESULTS ................................................... page 36.

A. Assessments of Psychopathy ................................ page 36.

B. Demographic and Background Characteristics of Sample........ page 36.

C. Demographic and Background Characteristics by PCL:YV Group. page 37.

D. PCL:YV Group, Conduct Disorder Symptoms, Index Offence

    Characteristics, and Offence History of Sample .......... page 38.
E. Conduct Disorder Symptoms, Index Offence Characteristics
And Offence History by PCL:YV Group ........................................ page 38.

F. Correlations between Factor 1, Factor 2, and Conduct
Disorder Symptoms and Measures of Offending During
The Ten-Year Follow-Up............................................................... page 39.

G. Rates of Recidivism During Ten-Year Follow-Up ......................... page 40.

H. Time in Custody and Response to Supervision during Ten-Year
Follow-Up .................................................................................. page 41.

I. Age Related Changes in Violent Offending ................................ page 42.

J. Survival Analyses........................................................................ page 46.

K. Logistic Regression Analyses ..................................................... page 49.

L. Comparison of Violent and Nonviolent Psychopaths................... page 50.

IV. DISCUSSION............................................................................. page 52.

A. Assessment of Psychopathy in Adolescent Offenders................. page 52.

B. Recidivism Amongst Adolescents Referred by the Courts
for Psychological Assessment Adolescents .................................... page 52.

C. Psychopathy and the Prediction of Violence in Adolescent
Offenders....................................................................................... page 54.

D. Response to Custody and Supervision ....................................... page 57.

E. Psychopathy and Early Onset Conduct Disorder ....................... page 58.

F. Risk Factors and Psychopathy: Unmasking the
Violent Psychopath ....................................................................... page 60.

Psychopathy, Performance-Verbal Index, and Violence ............... page 60.

Psychopathy, Self Harm, and Violence ........................................ page 64.

Psychopathy, Family Background, and Violence ....................... page 65.
G. Methodological Issues........................................................................................................... page 68.

H. Summary and Conclusions................................................................................................. page 71.

V. REFERENCES....................................................................................................................... page 74.
LIST OF TABLES

Table 1. PCL-R Items (Hare, 1991) .......................................................... page 88.

Table 2. Demographic and Background Characteristics of Sample ............... page 89.

Table 3. Demographic and Background Characteristics
by PCL:YV Group .......................................................... page 90.

Table 4. PCL:YV Scores, Conduct Disorder Symptoms, and
Offence History of Sample .................................................. page 92.

Table 5. Conduct Disorder Symptoms and
Offence History by PCL:YV Group ......................................... page 93.

Table 6. Pearson Product-Moment Correlations: PCL:YV Scores,
Conduct Disorder Symptoms, and Follow-up Offences
Per Year Free .......................................................... page 94.

Table 7. Mean Number of Offences Committed per Year Free by
PCL:YV Group During Ten-Year Follow-Up ......................... page 95.

Table 8. Mean Number of Nonviolent and Violent Offences Committed
Per Year Free by Age Period ........................................ page 96.

Table 9. Background Characteristics and Violent Failure ......................... page 97.

Table 10. Logistic Regression Analysis of Violent Failure as
A Function of PCL:YV and Background Variables ................ page 99.

Table 11. Background Characteristics of Violent and
Nonviolent Psychopaths ................................................ page 101.
LIST OF FIGURES

Figure 1. Recidivism Rates for Sample .................................................. page 103.
Figure 2. PCL:YV Group by Offence Failure ........................................ page 104.
Figure 3. PCL:YV Group by Breach/Escape ......................................... page 105.
Figure 4. Age Related Changes in Nonviolent Offending .................... page 106.
Figure 5. Age Related Changes in Violent Offending ........................... page 107.
Figure 6. Survival to First Violent Offence .......................................... page 108.
Figure 7. PCL:YV by Violent Offence History: Survival to Violent Offence .. page 109.
Figure 8. PCL:YV Group by Breach of Probation: Survival to First Breach .... page 110.
Figure 9. PCL:YV Group by Survival to First Escape/ Attempted Escape ...... page 111.
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Dedication

He said not, "thou shalt not be troubled, thou shalt not be travailed, thou shalt not be diseased" but He said, "Thou shalt not be overcome."
Julian of Norwich

This thesis is dedicated in Loving Memory to my father, Allen Howard Gretton, and to my mother, Alison Margaret Gretton, who through their lives have shared with me the most sustaining Hope. Your Love will always Live. To my mother, who by His Grace, and by the strength of her Spirit, remains this side of Eternity, in part, to share this special time with me. To Michael, Nannette, Rosemary, Keith, Julia, Harry, Adrian, Dulcie, Daniel, Alayna, Stephen, Gay, Michael, Jeremy, Joel, Anne, Joyce, Marcy, Tony, Tania & Mark, Susan, Nancy, and Leanne, my family and friends who share the journey with love and commitment, and give abundance to my life.
I. INTRODUCTION

A. OBJECTIVES

Violent and aggressive behavior is a subset of antisocial behavior that is of particular concern to the criminal justice system and to the general public. Research indicates that adolescence is marked by an increase in the number of people involved in antisocial behavior (Farrington, 1983; Wolfgang, Thornberry, and Figlio, 1987). In Canada, youth violence is a significant problem. In 1993, 17% of charges to youths under the criminal code of Canada were for violent crimes. From 1986 to 1993, the average annual increase in young people charged with violent incidents was 13% (Canadian Crime Statistics, 1993). The impact of violent crime extends beyond the targeted individual, to families and communities.

There is considerable scientific agreement that amongst adolescent offenders there is a subgroup of individuals whose course of disruptive and antisocial behaviors is continuous and progressive (Loeber, 1990; Moffitt, 1993). Early aggressiveness is considered a major antecedent to seriousness and frequency of later crime (Huesmann, Lefkowitz, and Walder, 1984; Statton and Magnusson, 1989; Huesmann and Eron, 1992; Pulkkinen, 1987). Chronic and serious adult offenders engage in disruptive and antisocial behavior earlier and with greater frequency than do low rate adult offenders (Loeber, 1982; Loeber and Dishion, 1983).

A substantial proportion of adolescent offenders will continue their criminal careers into adulthood. The challenge facing mental health professionals and the criminal justice system is to assess, with a reasonable degree of accuracy, the likelihood that a given adolescent offender will continue antisocial/criminal activities into adulthood, and
to identify those individuals who are a particular risk for violence.

Research indicates that the construct of psychopathy has implications for understanding persistent adult offending and dangerousness, and that diagnoses of psychopathy can have good predictive validity, providing that careful attention is paid to the reliability and validity of the procedures used to assess the disorder. There is increasing interest in understanding the developmental aspects of psychopathy and in the importance of differentiating between this disorder and other early conduct problems (Brandt, Kennedy, Patrick, and Curtin, 1997; Frick, O'Brien, Wootton, and McBurnett, 1994; Lynam 1996, 1997; Toupin, Mercier, Dery, Côté, and Hodgins, 1996).

The purpose of the present study was to investigate the construct of psychopathy in adolescents, using the Hare Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson, and Hare, in press). The PCL:YV is a modified version of the Hare Psychopathy Checklist-Revised (PCL-R; Hare, 1991), an instrument that is reliable and valid, and is a strong predictor of recidivism and violence. I used a retrospective follow-up design to examine the criminal histories of adolescents for a 10-year period subsequent to their court-mandated psychological assessments in 1986. The study was designed to provide information on the relationship between psychopathy and antisocial behavior from adolescence to early adulthood.

B. BACKGROUND

1. Psychopathy

Psychopathy is a personality disorder characterized by early onset and long term social and interpersonal dysfunction (American Psychiatric Association, 1994; Hare, 1970; Millon, 1981). As described by Hare (1991, 1993), psychopaths are grandiose,
Adolescent Psychopathy

egocentric, manipulative, dominant, forceful, and cold-hearted individuals. They display shallow and labile emotions, are unable to form long-lasting bonds to people, principles, or goals, and are lacking in empathy, anxiety, and genuine guilt or remorse. Psychopaths are impulsive and sensation seeking and tend to violate social norms; the most obvious expressions of these predispositions involve criminality, substance abuse, and a failure to fulfill social obligations and responsibilities (Cleckley, 1976; Hare, McPherson, and Forth, 1988a; Kosson, Smith, and Newman, 1990). Because of their disproportionate involvement in crime, particularly violent crime, psychopaths are of special concern to the criminal justice system and to the general public.

The symptoms of psychopathy are evident by middle to late childhood (Frick, O'Brien, Wootton, and McBurnett, 1994), and the disorder can be assessed reliably in adolescence (Brandt, Kennedy, Patrick, and Curtin, 1997; Forth, Hart, and Hare, 1990; Forth 1996; Toupin et al., 1996; Trevathan and Walker, 1989). Although the disorder is chronic and persists well into adulthood, there may be some changes in its symptom pattern after age 45 or so (Hare, McPherson, and Forth, 1988a; Harpur and Hare, 1994; Robins, 1966). These changes include a decline in nonviolent criminality by ages 45 to 50. A cross-sectional investigation of symptom patterns suggested that the socially deviant features of psychopathy decline with age, whereas the callous and manipulative features that are fundamental to psychopathy remain stable (Harpur and Hare, 1994).

2. Assessment of Psychopathy

The instrument of choice for researchers and clinicians assessing psychopathy is the 20-item Hare PCL-R; Hare, 1991; Hare et al., 1990). The PCL-R is a clinical rating tool containing items that tap the personality and behavioral characteristics traditionally
associated with psychopathy. Detailed instructions for scoring the items are contained in the PCL-R Manual. Briefly, each item is scored on a 3-point scale (0 = does not apply; 1 = applies to a certain extent; 2 = applies) by integrating data from an intensive semi-structured interview and case-file information. The total score can range from 0 to 40, and reflects the extent to which an individual matches the traditional prototypical conception of the psychopath (Cleckley, 1976; Hare, 1991). In adult male and female offender populations mean PCL-R scores vary between 21 and 24, with a standard deviation of approximately 7 (Hare, 1991). Evidence for the reliability and validity of the PCL-R is extensive (see reviews by Fulero, 1995; Hare, 1991; Hare et al., 1990; Kosson et al., 1990). For research purposes, cutoff scores between 28 and 32 (Hart and Hare, 1997) has been used for a diagnosis of psychopathy (covering about 15-30% of prison populations: male, female, and young offenders).

The PCL-R consists of two stable, oblique factors (Harpur, Hakstian, and Hare, 1988; Harpur, Hare, and Hakstian, 1989). The factors can be viewed as psychologically meaningful facets of the "higher-order" construct of psychopathy. Factor 1 reflects interpersonal and affective characteristics, such as a glibness and superficial charm, egocentricity, lack of remorse, and callousness, aspects considered fundamental to the clinical concept of psychopathy. Factor 2 reflects those aspects of psychopathy related to an impulsive, antisocial, and unstable lifestyle, or social deviance. Factor 2 scores in adults are strongly correlated with Diagnostic and Statistical Manual of Mental Disorders, 3rd edition (DSM-III; American Psychiatric Association, 1980) and DSM-III-R (American Psychiatric Association, 1987) diagnoses of antisocial personality disorder (APD), criminal behaviors, low socioeconomic background, and various self-report
measures of psychopathy, including the Socialization (So) scale of the California Psychological Inventory (CPI; Gough, 1957; 1987), the Psychopathic Deviate (Pd) and Hypomania (Ma) scales of the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway and McKinley, 1940), and Scale 6a (antisocial) of the Millon Clinical Multiaxial Inventory-II (MCMI-II; Millon, 1987) (Hare, 1985). The factor structure of the PCL-R provides researchers with a means of separating out the affective/interpersonal aspects of psychopathy from the deviant lifestyle components. DSM-IV diagnoses of APD (APA, 1994) are more strongly related to these latter components than to the affective/interpersonal features.

3. Recidivism and Violence

The constellation of personality and behavioral characteristics that is the core of the construct of psychopathy includes a disregard for social norms, impulsivity, unreliability, and irresponsibility, lack of empathy, remorse or emotional depth, and failure to maintain enduring attachments to people (Hare, 1991). It has been suggested that these traits contribute to a disposition to engage in a variety of antisocial, manipulative, and irresponsible behaviors, including violence and aggression (e.g. Hare, 1991; Hart and Hare, 1997; Widiger and Trull, 1994). Characteristics that inhibit individuals from engaging in antisocial and aggressive behavior (such as close emotional bonds, empathy, guilt, and remorse) are absent in psychopaths. As a result, it should not be surprising that psychopaths are responsible for a disproportionate amount of crime and criminal violence (Kosson et al., 1990; Serin, 1991; see reviews by Hare, Forth, and Strachan, 1992; Hare, 1996; Hart and Hare, 1997). Because psychopathy is a personality disorder, defined by stable and enduring characteristics, we would expect that this
propensity towards antisocial behavior and violence should also be stable and enduring over time.

Psychopaths engage in violent crimes and other forms of aggressive behavior (including verbal abuse, threats, and intimidation) to a much greater extent and at a higher rate than do other individuals and other criminals (Williamson, Hare, and Wong, 1987). Moreover, psychopaths differ from others in the nature of their violence and aggression. In particular, the violence and aggression of psychopaths tend to be predatory, cold-blooded, instrumental, and remorseless; they frequently occur in the absence of intense emotional arousal, and are not easily understood in terms of normal motivations, conflicts, and frustrations (Cornell et al., 1996; Williamson et al., 1987). Unlike the violent acts of most individuals, those of psychopaths seldom can be described--or understood--as "crimes of passion" (Williamson et al., 1987).

Recent research clearly indicates that the construct of psychopathy has implications for understanding persistent, versatile, and violent adult offending. Further, psychopaths can be meaningfully differentiated from other offenders in terms of their response to custody and supervision. It appears that diagnoses of psychopathy can have good predictive validity, providing that careful attention is paid to the psychometric properties of the instrument used to assess the disorder.

Hart et al. (1988), for example, found that PCL-R scores correlated .33 with success/failure following conditional release of 231 offenders from prison. Regression analyses demonstrated that the PCL-R made a significant contribution to the prediction of outcome over and beyond that made by relevant criminal-history and demographic variables. Sixty-five percent of the psychopaths and 24 percent of the nonpsychopaths,
defined by the PCL-R, violated the conditions of release. Survival analysis indicated that the probability of remaining out of prison for at least one year was .80 for the nonpsychopaths but only .38 for the psychopaths.

Serin, Peters, and Barbaree (1990) administered the PCL-R to 93 male inmates prior to release from a federal prison on unescorted temporary absence (UTA). Six (37.5%) of the 16 psychopaths in the study violated the conditions of UTA, whereas none of the 16 nonpsychopaths did so. Subsequently, 77 of the 93 inmates were released on parole; follow-up data were available for 74 of these inmates, including 11 psychopaths and 13 nonpsychopaths. The failure (recommittal) rate on parole was 7% for the nonpsychopaths and 33% for the psychopaths. Moreover, the mean time to failure was much shorter for the psychopaths (8.0 months) than it was for the nonpsychopaths (14.6 months). The PCL-R predicted outcome for the male inmates better than did a combination of criminal-history and demographic variables and several standard actuarial risk instruments. In a 5-year follow-up of the Serin et al. (1990) recidivism study, Serin (1991) reported that the overall failure rate was 67% for 81 criminals involved in the study, 38% for the nonpsychopaths and 85% for the psychopaths.

The PCL-R appears to be predictive not only of recidivism in general but also of violent recidivism. In the study by Serin (1991), none of the nonpsychopaths and 25% of the psychopaths violently recidivated. In a 30 month (on average) follow-up, 38% of the nonpsychopaths and 85% of the psychopaths recidivated (Serin, 1996). The PCL-R was more predictive of violent recidivism than were several standard actuarial instruments.

In a long-term follow-up study of 166 male patients released from a forensic psychiatric unit, Harris, Rice, and Cormier (1991) reported that 77% of 52 psychopaths,
defined by the PCL-R, committed a violent crime subsequent to their release from an intensive therapeutic community program. By way of comparison, the violent recidivism rate for 114 other patients released from the same program was only 21%. Seventy-eight percent of the outcomes were correctly predicted by the PCL-R, with a relative improvement over chance of 52.6%. Cooke (1995) studied psychopathy in a sample of offenders in Scottish prisons. He found a correlation $r = .23$ between the PCL-R and institutional violence. Quinsey, Rice, and Harris (1995) followed up 178 sexual offenders and found that the PCL-R was correlated with both violent and sexually violent recidivism.

Salekin, Rogers, and Sewell (1996) conducted a meta-analysis of 18 studies that examined the relationship between the PCL-R and violent/nonviolent recidivism. For general recidivism, effect sizes ranged from .24 to .93, with a mean effect size of .55. The lowest effect size was found for general recidivism in adolescents. The highest effect size was found predicting recidivism for those on temporary absence and parole release. In terms of violent offending, the mean effect size was .79 (range .42 to 1.92). Overall, across studies, these results suggest a moderate to strong relationship between psychopathy and the prediction of general and violent recidivism. A more recent meta-analysis (Hemphill, Hare, and Wong, 1998) supports and extends these findings.

A relationship between psychopathy and violence has also been found with female offenders. Cooke (1995) found that PCL-R scores were strongly correlated ($r = .46$) with violent misbehaviors in a sample of Scottish female offenders. Zaparniuk and Hare (1995) found that the 12-month recidivism rate for 75 female offenders released from Burnaby Correctional Centre for Women was, respectively, 17%, 30%, and 60% for
those with low, medium, and high scores on the PCL-R. In summary, the PCL-R is strongly associated with criminal and violent behavior and is a good predictor of both general and violent recidivism following release from custody.

4. Adolescent Antisocial Behavior

Clearly, psychopathy does not emerge unannounced in adulthood. Yet, until recently (e.g. Brandt et al., 1997; Forth, Hart, and Hare, 1990; Lynam, 1997; Toupin et al., 1996) there has been little research linking the construct of psychopathy, as observed in adults, to the substantial body of literature investigating patterns of risk associated with adolescent antisocial behavior.

Evidence suggests that amongst offenders there is a subgroup of individuals whose course of misbehavior begins early and extends into adulthood (Loeber, 1990; Moffit, 1993). In a summary of studies Loeber and Stouthamer-Loeber (1987) concluded that 70% to 90% of adult violent offenders had been highly aggressive when young. Early delinquent activities by boys and psychoactive substance use in boys and girls predict a high rate of offending and progression to serious substance use (Loeber, 1988).

Although there are multiple pathways leading to conduct problems in childhood, adolescence, and into adulthood, there is a remarkable consistency in the literature that describes a pathway of antisocial behavior that begins early and is chronic and progressive. The markers that help to define this pathway bear a striking resemblance to the cluster of symptoms that define the construct of psychopathy.

The Cambridge Study in Delinquent Development is a prospective study in the development of antisocial behavior. It has been described in numerous papers (e.g., Farrington, 1983, 1995; Farrington and West, 1993; West and Farrington, 1973). Subjects
were 411 British youths who were followed up by personal interviews from age 8 to age 32. In general, the prevalence of offending increased up to age 17, peaked in terms of number of offenders and number of offences, then decreased. However, Farrington (1983) found that youths convicted at the earliest ages (10 to 12) tended to persist in their offending into adulthood. At age 32, six percent of these "chronic" offenders committed half of all the officially recorded offences. Offenders who were relatively deviant at age 18 also tended to be relatively deviant at age 32 (Farrington and West, 1993).

Risk factors identified in the Cambridge study included poverty, poor housing, socially disorganized communities, poor child-rearing techniques, poor supervision, harsh discipline, parental conflict, and separation from a biological parent. Impulsivity and low intelligence were also associated with delinquency. Those who were convicted at age 32 were more likely than others to have lived a transient lifestyle; they moved more frequently, were more likely to be divorced or separated, more apt to have engaged in spousal assault, to be unemployed, to abuse alcohol and drugs, and to be out of contact with their children. Overall, the chronic and persistent offenders were more deviant than either those who desisted (those convicted before, but not after, their 21st birthday) or those who started crime after the age of 21.

The Pittsburgh Youth Study (Loeber, Stouthamer-Loeber, VanKamen, and Farrington, 1991) followed a community sample of boys who were initially in grades one, four, or seven. After two years, they found that factors associated with the initiation of offending included physical aggression, oppositional behavior, attention-deficit/hyperactivity, depression, deviant peers, and poor supervision by parents. Similar to other studies, they found that early onset offending was associated with later serious,
varied, and frequent offending.

In a review of studies on the stability of antisocial behavior, Loeber (1982) found that continuity in offending was highest for youths who were extreme in their antisocial behavior, engaged in frequent early antisocial behavior, and committed a variety of different offences in different settings. Boys who began their careers early tended to maintain higher mean annual frequencies of convictions through age 24. Boys who were first arrested between 10 and 12 years had higher annual mean frequencies than boys who were first arrested either at 13 to 15 years or later in adolescence.

Based upon his findings, Loeber (1990) described risk factors associated with delinquency. These include attention-deficit/hyperactivity, versatility of covert and overt antisocial behaviors (e.g., aggression and stealing), academic problems (specifically reading and writing), inadequate parental supervision and involvement, parental criminality and aggressiveness, and deviant peers. Loeber, Green, Keenan, and Lahey (1995) studied a group of children age 7 to 12. They were followed up for five years. They identified four categories of predictors that appear important in predicting the onset of conduct disorder: demographic factors, parental psychopathology, parent-child interactions, and other child psychopathology. Within these categories, they found that low socio-economic status, diagnosis of oppositional defiant disorder, and parental substance abuse contributed to the prediction of a conduct disorder diagnosis over and above verbal intelligence, fighting, number of conduct disorder symptoms, poor supervision, and age of mother at birth of first child.

Loeber (1988, 1990) defined three paths of antisocial behavior leading to different outcomes: The “aggressive/versatile path”, the "nonaggressive path" and the "exclusive
substance abuse path". The aggressive/versatile path typically involves early onset of behavior problems, aggressive and nonaggressive concealing behaviors, attentional problems, impulsivity, and hyperactivity. Aggressive/versatiles are likely to become multiple offenders, displaying a variety of conduct problems. Persistence in offending is high among this group. The nonaggressive path tends to involve a later onset of antisocial behavior and less serious and less aggressive forms of delinquency. These individuals tend to participate in antisocial behavior in the company of peers. Their academic problems usually stem from refusal to participate rather than from difficulties in learning. Termination of offending appears to be high in this group. The exclusive substance abuse path represents a third group of offenders who do not display serious antisocial behaviors when young and whose substance abuse starts later in life.

The Oregon Youth Study (OYS) began in 1984 and is a longitudinal study of two birth cohorts of fourth grade boys living in high crime neighborhoods of a small metropolitan area (for reviews see Patterson, Capaldi, and Bank, 1991; Patterson and Yoerger, 1993). Based upon their findings, the authors defined two routes to delinquency which they termed "early-starters" and "late-starters". Each of these pathways is associated with distinct antecedents and long-term outcomes. The "Early-Starter-Late Starter Developmental Model" of delinquent behavior is based upon Patterson's (1982) coercion model of antisocial behavior. According to Patterson, parents' child rearing practices play a major role in the child's acquisition of prosocial and antisocial behaviors. The antisocial behavior of early-starters emerges as a result of reinforcement from family members (Patterson, Capaldi, and Bank, 1991). Antisocial behaviors are accompanied by deficits in social skills that generalize from the home to other settings, and lead to social
failures that contribute to long term maintenance of the antisocial process. Early-starters progress from less serious conduct problems (e.g., tantrums) to more serious and broader forms of antisocial behavior (theft, aggression). Patterson and Yoeger (1993) found that boys arrested at, or before, age 13 had a risk between .54 to .80 of three additional arrests by age 16, and that chronic offending (defined by three or more offences) was significantly related to violent offending.

Late-starters are differentiated from early-starters in many respects. Late-starter boys are not identified as problem children during elementary grades. As adolescents they are at least marginally skilled in peer relations and academics, and they do not begin offending until age 15 or later. In the late-starter pathway, the process of antisocial behavior begins in early adolescence, when parents’ marginal family management skills are disrupted by stressful forces such as divorce, illness, alcoholism, or unemployment (Patterson, Capaldi, and Bank, 1991). Disruption of the family process leads to disruptions in parental supervision, creating a situation that permits the youth to become involved in a deviant peer group. This deviant peer group becomes the training ground for antisocial behavior. Late-starters are assumed to be at low risk for chronic antisocial activity because their higher levels of work and relational skills make them more likely to drop out of the antisocial process as they gradually experience opportunities to engage in more legitimate adult roles and activities during the transition from adolescence to adulthood. The assumption, based on this model, is that early-starters account for a substantial number of the adolescents who become chronic offenders.

A coercion model suggests that the shift in antisocial behavior over time is due to the operation of the "escalation mechanism"; this occurs when one member of a dyad
Adolescent Psychopathy

(e.g., the child) escalates the intensity of aggressive behavior, the other member of the
dyad (e.g., the parent) submits, withdraws, or reacts in a neutral to positive manner, thus
reinforcing the aggressive behavior (Patterson, 1982). However, while this model
accounts for the process of change in aggressive behavior, it is clear that there are
individual differences in susceptibility to the coercive process. Escalation occurs very
early in the interchange for aggressive children; siblings and mothers tend not to escalate
until the second or third reaction in a sequence (Patterson, 1980). Moreover, it appears
that there is a subgroup of offenders who escalate in the intensity and scope of their
aggressive behavior. Patterson and Yoerger (1993,) assert that at the core of this
subgroup of offenders is an antisocial trait of "noncompliance." According to these
authors, early- starters possess an "extremely aversive interpersonal style used to guide,
shape, and manipulate the behavior of others. This style makes it difficult to monitor,
give corrective feedback, to monitor, or to discipline a difficult child" (Patterson and
Yoerger, 1993; p.145).

In a New Zealand cohort of children Moffitt (1993) found that many individuals
began to engage in antisocial behavior during adolescence. For the majority of these
individuals, however, the scope of their antisocial activity was situational and time-
limited. Based upon her findings, Moffitt (1993) suggests that juvenile delinquency
involves two distinct categories of individuals: "adolescent-limited" and "life-course-
persistent" delinquents. Life-course-persistent antisocial behavior is exhibited by the
most persistent 5-6% of offenders. In the New Zealand cohort of children, multiple
informants rated 5% of children as antisocial when they were measured across seven
biennial assessments. This subgroup showed remarkable stability in antisocial behavior
relative to two thirds of the sample who were rated as above average on antisocial behavior by either only one reporter or at only one or two ages. Conversely, Moffitt (1993) estimated that adolescent-limited delinquents comprised about 73% of her delinquent sample of boys. The adolescent-limited subgroup is thought to engage in less serious forms of antisocial behavior and desist earlier in adulthood than their life-course-persistent counterparts. This finding is consistent with the results from other studies wherein approximately 5% of offenders are found to be responsible for about 50% of known crimes (Farrington, Ohlin, and Wilson, 1986).

Early onset and persistence continue to distinguish high rate offenders throughout their lives. According to Moffitt (1993), individuals with life-course-persistent antisocial behavior "... display high rates of antisocial behavior across time and diverse situations... The topography of their behavior may change with changing opportunities, but the underlying disposition persists across the life course" (Moffitt, 1993; p. 678).

Single cross-sectional measures of antisocial behavior do not distinguish between adolescent-limited and life-course-persistent subgroups (Moffitt, Caspi, Dickson, Silva, and Stanton, 1996). Parental descriptions of problem behavior, boys' self-reports of illegal behavior, police arrest records, court conviction records, age of onset of official delinquency, dangerous driving habits, unsafe sexual practices, or symptoms of substance abuse all failed to distinguish the two groups. In general, meaningful differentiations between the groups could not be made without valid historical childhood data. Life-course-persistent and adolescent-limited individuals exhibit similar antisocial behaviors at the time of assessment.

With valid childhood data, Moffitt et al. (1996), suggest that adolescent-limited
Adolescent Psychopathy

and life-course-persistent individuals can be distinguished in terms of their
developmental histories, cognitive functioning, family backgrounds, and the course of
long term antisocial behavior. Moffitt (1993) suggests that life-course persistent
antisocial behavior begins in early childhood because of neuropsychological dysfunctions
that disrupt the normal development of language, memory, and self control. In turn, life-
course antisocial behavior results from interactional processes between the child and his
or her environment. Specifically, Moffitt suggests that their predispositions may evoke
exacerbating responses from their environment (e.g., from parents) and may make them
more vulnerable to criminogenic environments. In contrast, adolescent-limited young
offenders participate in antisocial behavior because of a maturity gap, when adolescents
desire adult privileges but cannot have them. According to Moffitt, engaging in antisocial
behavior is a "solution" to the dilemma of the maturity gap.

In terms of long term antisocial behavior, one aspect that distinguished the life-
course-persistent and adolescent-limited groups was their propensity to violence. A
follow-up from age 5 to age 18 (Bartusch, Lynam, Moffitt, and Silva, 1997) indicated
that the childhood factor (life-course-persistent) was significantly more related to
convictions for violent crimes, whereas the adolescent factor (adolescent-limited) was
more related to convictions for nonviolent offences.

Among these "subgroup" descriptions of delinquency, the common theme
characterizing "early-starters," "aggressive/versatiles," "child onset," and "life-course
persistent" offenders includes: impulsivity, high levels of aggression, stability,
progression and versatility of antisocial behavior, social deficits, hostility, exploitation,
impulsivity, and other characteristics similar to features that define adult psychopathy, as
Adolescent Psychopathy

conceptualized in the PCL-R. Evidence based on adult offenders suggest that the
distinction between psychopathy and criminality is a meaningful one (Hart and Hare,
1997). However, little is known about the early course of psychopathy. Evidence from
the adult literature and recent evidence from literature on children and adolescents
strongly suggests that psychopathy is a key risk factor in chronic adolescent aggression
and recidivism.

5. Psychopathy and Childhood/Adolescent Antisocial Behavior

Frick, O'Brien, Wootton, and McBurnett (1994) have attempted to use the two-
factor conceptualization of psychopathy (Factor 1: interpersonal/affective traits; Factor 2:
social deviance) to help them to understand childhood conduct problems. They studied 96
children between the ages of 6 and 13 who were consecutive referrals to a service which
provides comprehensive psychological evaluations for children with severe emotional,
behavioral, or learning problems. They had parents and teachers complete a set of rating
scales developed to measure traits and behaviors adapted from the PCL-R. From this
Psychopathy Screening Device (PSD), they identified a psychopathy (P) factor, defined
by interpersonal/affective features, and a conduct problems (CP) factor, defined by
impulsivity and behavioral problems. They found that the P scale was negatively
correlated with ratings of anxiety and positively correlated with sensation seeking scores.
Children who rated high on both factors (interpersonal/ affective and conduct problems)
had more conduct problems and more police contacts than those who rated high on the
CP scale alone. This and other studies (e.g., Lahey et al., 1993; Lynam, 1997; Toupin et
al., 1996) indicate that the features of adult psychopathy are present and identifiable at an
early age. In fact, there is growing agreement that behavioral diagnoses may lead to
overestimation of children at risk for chronic conduct problems (e.g. Lynam, 1997). It appears that beyond behavioral descriptions, there are affective, emotional, and personality factors that are important for understanding early conduct problems and the progression to chronic antisocial behavior (Lynam, 1997, Moffitt, Caspi, Silva, Stouthamer-Loeber, 1995).

Recent research indicates that psychopathy can be measured in young offenders and that its correlates are similar to those found with adult offenders. Forth, Hart, and Hare (1990) found that the PCL-R's psychometric properties, distribution of scores, and external correlates in a sample of 75 male offenders in the Willingdon facility in British Columbia were similar to those found in samples of adult inmates. In addition, PCL-R scores were related to the number of DSM-III-R conduct disorder symptoms, as well as to violent offences, institutional violence, and violent recidivism up to two years following release from the facility. It is noteworthy that these results were obtained with a relatively homogeneous sample. The offenders were among most seriously criminal young offenders in the province of British Columbia, and all but two met the DSM-III-R criteria for conduct disorder.

Forth (1996) investigated psychopathy in a group of 106 incarcerated offenders in Ontario using the Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson, and Hare, in press), a version of the PCL-R modified for use with adolescents. She compared this group with a group of adolescents in the community. Among the community-based sample, she found that PCL:YV scores correlated with conduct disorder symptoms and antisocial behaviors. Incarcerated, psychopathic young offenders were more likely than nonpsychopaths to be sexually aggressive, have histories of robbery, arson, or threatening
with a weapon. She also found that psychopaths were more likely than nonpsychopaths to have come from maladaptive family environments. Specifically, parental antisocial attitude, broken home, physical punishment, inconsistent discipline, and childhood separation from parents all contributed to the prediction of PCL: YV total scores.

In a study of incarcerated black and white delinquents, Brandt et al. (1997) investigated the reliability and factor structure using a modified version of the PCL-R, adapted for adolescents. The PCL-R assessments were based on file information. The authors found high interrater reliability for the PCL-R (intraclass coefficients were .87 for single ratings). Indices of internal consistency indicated that the PCL-R functioned as a homogenous scale in their sample. Using confirmatory factor analyses and coefficients of congruence, they found a two factor structure that resembled the two factor structure seen in the adult version. No relationship was found between history of substance abuse and the PCL-R.

Subjects in Brandt et al.'s (1997) study were followed up for a period of 18 – 24 months. High PCL-R scorers, compared to low scorers, offended violently and earlier following release. There were no differences between high and low PCL-R scorers and the length of time until the next nonviolent offence. They also found that Factor 1 and Factor 2 contributed significantly to the prediction of overall offences, even after controlling for a number of criminal history and demographic variables. Similar to adults, total PCL-R scores, and in particular Factor 2, was related to self-report measures of behavioral maladjustment and antisocial behavior. Total PCL-R scores and Factor 2 were associated with the Psychopathic Deviate (Pd) and Hypomania (Ma) scales of the MMPI (Hathaway and McKinley, 1940); and the Externalizing factor and Aggressive subscale
of the Child Behavioral Checklist (CBCL; Achenbach and Edelbrock, 1983).

Each of these studies (Brandt et al., 1997; Forth 1990, 1996) were conducted on young offenders who were in secure custody and provide valuable information about the background and offence histories of incarcerated psychopathic and non-psychopathic young offenders. However, incarcerated young offenders are not representative of young offenders in general; they are likely to be more violent and recidivistic than other young offenders. It is not yet known whether the associations between adolescent psychopathy and violent behavior generalize to other young offenders in contact with the justice system.

Toupin, Mercier, Dery, Côté, and Hodgins (1996) administered an adapted version (see Forth et al., 1990) of the French translation of the PCL-R (Côté and Hodgins, 1996) to 52 adolescents. Subjects were involved in either rehabilitation or special educational programs (but, in contrast to the above studies, were not incarcerated). Toupin et al. later re-interviewed 42 subjects. During the one-year follow-up period they found that PCL-R scores correlated .43 with delinquency, .30 with aggressive behavior, and .28 with number of aggressive conduct disorder symptoms.

Psychopathy recently was investigated in a sample of adolescent sex offenders. Gretton, McBride, O'Shaughnessy, and Hare (1995) studied 220 males between the ages of 12 and 18 years (mean = 14.7 years), who had confessed to, or were convicted of, one or more sexual offences. They had attended the Sex Offender Treatment Program (SOTP) at Youth Court Services, Burnaby, British Columbia between 1985 and 1993. Each offender was retrospectively assessed for psychopathy (using the PCL-R) on the basis of extensive file history information. PCL-R scores were similar to those found in adult
samples (mean score = 21.4; standard deviation = 7.3). Post-release recidivism was coded from official criminal records for an average 4.7 years. Psychopaths committed sexual, violent, and nonviolent offences at much higher rates than did nonpsychopaths (odds ratios ranged from 3.4 to 7.8). Survival analysis indicated that within two years of release the failure (reconviction) rate for any type of offence was 36% for the nonpsychopaths and 72% for the psychopaths. These results suggest that amongst adolescent sexual offenders, psychopathy was related to a pattern of generalized offending, rather than sexual offending per se.

C. PURPOSE OF THE RESEARCH

The strong association between adult psychopathy and both general and violent recidivism is of major concern to the criminal justice system and to the general public. Research on antisocial behavior clearly indicates that the most severe and chronic adult offenders have lengthy histories with early beginnings. The courts rely on the assistance of mental health professionals to assess the probability of continued offending and violence. Clearly, a better understanding of the developmental course of psychopathy is needed so that earlier and more appropriate intervention strategies can be initiated. An important step is to study the course of the disorder from adolescence, when antisocial behaviors first bring adolescent offenders into formal contact with the justice system, into adulthood. Ultimately, greater understanding of adolescent psychopathy will assist in the development and implementation of early interventions before attitudes and behavioral patterns have become too rigid to change.

To date, follow up studies that have investigated recidivism in adolescent psychopaths have been limited to about two years. The purpose of the present research...
was to provide much needed longitudinal data on the criminal behavior of psychopaths from adolescence to early adulthood. This study targeted youths referred by the courts to a provincial mental health clinic for psychological assessment. Using a retrospective follow-up design, the criminal records of adolescents who had been referred by the courts for psychological assessment in 1986 were examined for a 10-year period ending in 1996. It was hoped that the lengthy follow-up period would provide a context to study and to distinguish between individuals whose contact with the criminal justice system persists and becomes more violent into adulthood from those whose contact with the criminal justice system stabilizes or declines when they enter adulthood.

D. SUMMARY OF PREDICTIONS

It was predicted that over the ten-year follow-up period, relative to their lower scoring counterparts, individuals scoring high on the PCL:YV will exhibit more chronic and persistent offence patterns, particularly with respect to violent offences. Specific predictions were as follows:

(1) Psychopaths will be more likely to engage in violent recidivism than will nonpsychopathic offenders over the total follow-up period.

(2) When age-related patterns of offending are studied, psychopaths will show higher rates of violent recidivism than nonpsychopathic offenders at each age period from early adolescence through early adulthood.

(3) Psychopaths will spend more time in custody and will demonstrate poorer responses to supervision and custody over the follow-up period than will nonpsychopaths. Specifically, psychopaths will be more likely to breach the terms of their probation orders than will nonpsychopaths and will be more difficult to manage during custody (i.e. will
have a greater likelihood of attempting or accomplishing an escape from custody).

(4) Psychopaths will offend, violently, earlier in the follow-up period, than will nonpsychopaths, as demonstrated by a lower probability of surviving in the community (i.e. remaining free of charges or convictions) following release from custody.

(5) PCL:YV scores will make a significant contribution to the prediction of violent offences even when the contributions of age of onset, history of violent offending, conduct disorder symptoms, and other variables associated with chronic offending in adolescence have been taken into account.
II. METHOD

A. SUBJECTS

The subject pool consisted of adolescent males, ages 12 to 18. Subjects were directed by the courts under Section 13 of the Young Offenders Act to undergo psychological and psychiatric assessment at the Youth Court Services Inpatient Unit (IAU) in Burnaby, British Columbia from January 1, 1986 to December 31, 1986. They had confessed to or were convicted of one or more violations of the penal code, and were awaiting sentencing. Out of 190 males who were admitted to the IAU during the target period, 175 were referred for assessment purposes. The other fifteen offenders were referred for, and attended treatment through the clinic's sex offender treatment program during the study period. Archival data were used to complete retrospectively the PCL:YV and to collect information on demographic and background characteristics for 175 offenders. These data consist of file history information, including psychiatric and psychological evaluations, social history, police and victim statements, offence type, predisposition reports, interview notes, and nursing documentation for the duration of each offender's three to seven day stay at the inpatient assessment unit. In 1986, the IAU was in its early years of service, and information collected on each subject was not yet standardized. Because of this, the available file information for each subject varied. Subjects included were those whose PCL:YV protocol had five or fewer omitted items and for whom criminal follow-up information was available. Of the 175 assessment referrals to the IAU, PCL:YV assessments and criminal record information were obtained for 157 (89.7%) subjects. Nine subjects were excluded due to insufficient file information to complete the PCL:YV assessment and 9 subjects were excluded because of lack of
criminal record information during the follow-up period. One subject was known to be deceased approximately one year before the date of follow-up. Since approximately nine years of follow-up information was available for this subject, his data were included in analyses.

The clinical director and the research committee at Youth Court Services approved the study. Ethical approval was obtained from the University of British Columbia Ethics Committee. Confidentiality was assured through a data coding system. No identifying information in terms of names, names associated with the individual, schools attended, or addresses were recorded from the files.

**Comparability Between Included and Excluded Subjects**

Age at index offence, race/ethnicity, and years of education were compared between the 157 included and the 18 excluded assessment referrals. The mean age at index offence was similar between the included (M = 15.87, S.D. = 1.52) and excluded (M = 15.61, S.D. = 1.60) subjects. Information about racial/ethnic composition was available for 155 subjects. Race was recoded as white/non-white, and frequency counts for the included sample were compared with frequency counts for the excluded sample. The racial/ethnic composition was similar for included and excluded subjects (79% of the included subjects were white compared with 85% of the excluded subjects). There were no significant differences between the included (M = 8.0, S.D. = 1.12) and excluded (M = 7.8, S.D. = .56) subjects in years of education. There were no significant differences in PCL:YV scores for subjects who were included (M = 22.58, S.D. = 7.09) or excluded (M = 22.61, S.D. = 9.98) because of lack of follow-up criminal record information.
B. PROCEDURES

1. Assessment of Psychopathy

(A) Hare Psychopathy Checklist-Revised (PCL-R)

A critical requirement in research investigating psychopathology in adolescents is the reliability and validity of the assessment instrument. The PCL-R (Hare, 1991; Hare et al., 1990) has generated a consistent body of findings on adult psychopathy. It is a 20-item rating scale designed to assess the traditional clinical construct of psychopathy, perhaps best exemplified in the work of Cleckley (1976). The PCL-R measures both personality and behavior-related characteristics of psychopathy. It is scored on the basis of both present-state and historical information and can be used to obtain both dimensional and categorical scores. The information needed to score the items is obtained from a 90-180 minute semi-structured interview and institutional files. Table 1 shows the items on the PCL-R. Information used to score each item is detailed in the manual (Hare, 1991). Each item is scored on a three point scale: two indicates that the item definitely applies, one that it may or may not apply, and zero, that it definitely does not apply to the subject. Items are summed to yield a total score that can range from zero to 40. Factor 1 scores are obtained by summing the scores on items 1, 2, 4, 5, 6, 7, 8, and 16; Factor 2 scores are obtained by summing the scores on items 3, 9, 10, 12, 13, 14, 15, 18, and 19 (see table 1).

(B) Modifications to PCL-R for Use with Adolescents

PCL:YV assessments can be made with adolescents with slight modifications. Forth, Hart, and Hare (1990) found that the PCL-R's psychometric properties, distribution of scores, and external correlates in a sample of 75 male offenders
Adolescent Psychopathy

(ages 13 – 20) in the Willingdon facility were similar to those found in samples of adult inmates. The mean score was 26.2 (S.D. = 7.5). This score is slightly higher than the pooled mean 23.6 and S.D. = 7.9 that was found in the standardization samples (Hare, 1991). This higher mean score may be due to the nature of the sample at the Willingdon facility which houses the most serious delinquents in British Columbia. In a study of young offenders at two secure custody centers (N=106), Forth (1996) found the mean score was 26.30, (S.D. = 6.1). Gretton, et al. (1995) assessed 220 adolescent sex offenders at the Youth Court Services Outpatient Department for psychopathy based upon file information only. The mean PCL-R score of 21.7 (S.D. = 7.3) was well within the range of those found in the normative samples of the PCL-R (Hare, 1991).

Three of the PCL-R items were slightly modified for use with adolescent offenders. The modifications are as follows. Item 17, many short-term marital relationships: The requirement for relationships to be live-in has been modified to include non live-in relationships. Items 18 and 20 are concerned with criminal history. Because the criminal history of a young offender typically is shorter than that of an adult offender, the scoring criteria were altered for these two items. For item 18, all violent crimes were scored as a 2 and nonviolent crimes as a 1. For item 20 offences were scored based on formal and informal offence history information: four or more types of offences were scored as a two, three offence types as a one, and one or two offence types as a zero.

(C). PCL:YV Group Definition

For correlational and regression analyses, psychopathy was treated as a continuous variable, using PCL:YV total, Factor 1 and Factor 2 scores. For analyses of group differences, most studies divide subjects into a psychopathic group (PCL-R score
mixed group (PCL-R score ranging from 20-30) and nonpsychopathic group (less than or equal to 20 on the PCL-R) for research. Hart and Hare (1997) suggest an optimal cut-off score lies between 28 and 32 for a diagnosis of psychopathy. Analyses of group differences were carried out using subjects classified as psychopaths (PCL:YV score 29 or greater), mixed group (PCL:YV score between 18 and 28 inclusively), or as nonpsychopaths (PCL:YV score less than 18).

2. Demographic and Family Background Variables

Demographic and background characteristics of the sample were coded as described below. Two undergraduate raters coded these items for 25 subjects, in order to obtain estimates of reliability. Raters were blind to PCL:YV ratings. The contributions of these were then addressed as independent predictors for violent recidivism. Variables that could be coded for less than 70% of offenders were excluded from the analyses. The coded variables included:

(A). Criminal history: Age of onset and history of offences were obtained from police record and file information.

(B). Conduct disorder symptoms: Symptoms of conduct disorder include: bullying, fighting, using a weapon to harm others, physical cruelty to people, physical cruelty to animals, robbery, forced sexual activity, fire-setting, vandalism, break and entering, lying, stealing, staying out after curfew, running away, and truancy. This information was obtained from clinical notes (nursing, psychology, psychiatric, social work) and was based on observed behavior as well as information obtained from collateral sources (i.e. parents and probation officers). For categorical analyses, conduct disorder diagnoses were made according to DSM-IV (as described in DSM-IV criteria for
conduct disorder [APA, 1994]). These included conduct disorder, childhood onset
conduct disorder, and adolescent onset conduct disorder. To meet the criteria for conduct
disorder, the subject must meet three of the 15 symptom criteria in the past 12 months. To
meet the criteria for childhood onset conduct disorder, there must be evidence of at least
one criterion characteristic of conduct disorder prior to age 10. To meet the criteria for
adolescent onset conduct disorder, there must be no evidence of conduct disorder prior to
age 10. A severity rating of conduct problems was made based on the number of
symptoms.

(C). Family background: The variables coded were (1) History of adoption, (2) Age of separation from biological mother (The definition of separation included permanent changes in guardianship and temporary separations lasting more than six months); (3) Age of separation from biological father; and (4) History of physical, sexual, and emotional abuse. Physical abuse was defined as physical punishment that resulted in bruising or bleeding, frequent pushing or grabbing, and being hit with a fist or other object. Sexual abuse was defined as fondling or intercourse before the age of thirteen. Emotional abuse was defined as frequent and ongoing humiliating comments, name calling, bullying, rejection, and hostility from one or both parents.

(D). Intelligence tests (I.Q.): Data from the Weschler Intelligence Scale for Children- Revised Version (WISC-R, Weschler, 1981) or Weschler Adult Intelligence Scale- Revised (Weschler, 1974) were obtained from file records. These data were used to determine Full Scale intelligence scores (FSIQ), Performance intelligence scores (PIQ), and Verbal intelligence scores (VIQ). Large differences between PIQ and VIQ scores are known to be associated with recidivism (e.g. Haynes and Bensch, 1981).
Difference scores were calculated by subtracting Verbal scores from Performance scores (P > V Index).

(E). Other background variables: A two point scale was used to rate alcohol and drug use: 0 indicating none to mild use, 1 indicating moderate to severe use. History of self-directed aggression included file reports of suicide attempts and other forms of self-harm (e.g. slashing).

3. Outcome Variables

Royal Canadian Mounted Police - Finger Print Service (RCMP- FPS) and British Columbia Corrections (BC Corr) files were obtained on March 15, 1996 and July 10, 1996 respectively. Information from these sources was used to tabulate the number of criminal offences (charges and convictions), months spent in custody, months on probation, and months free in the community. BC Corr provides detailed information about the charges, convictions, and dates pertaining to the movement of individuals in and out of custody and supervision. The follow-up period was defined as the number of months from the date of assessment at IAU to July 10, 1996.

(A). Years Free in the Community: The number of months on probation and months free were summed together to determine the total number of months that the subject spent in the community during the follow-up period. Total number of months was divided by twelve as an estimate of the number of years free in the community. This value was used to calculate the rate of offending per year free, as described below.

(B). Any Offences: Offences included in the criminal record were tabulated for the pre-assessment and follow-up periods. Offence failure was defined as commission (including charges or convictions) of an offence during the follow-up period. Number of
offences was defined as the number of charges or convictions committed over the follow-up period. A charge that resulted in a subsequent conviction was counted only once as an offence. Rate of offending per year free in the community was calculated by counting number of offences counted over the follow-up period (numerator) and dividing this number by the number of years the offender spent free or on probation over the follow-up period.

(C). Nonviolent Offences: These included theft, possession of stolen property, fraud, escaping custody, driving offences, and drug offences. A charge or conviction of a nonviolent offence constituted nonviolent failure. Number of nonviolent offences and rate of nonviolent offending per year free in the community was calculated as described above. A charge that resulted in a subsequent conviction was counted only once as an offence. Rate of nonviolent offending per year free in the community was calculated by counting number of nonviolent offences counted over the follow-up period (numerator) and dividing this number by the number of years the offender spent free or on probation over the follow-up period.

(D). Violent Offences: Consistent with research on adult offenders, offences categorized as violent included murder, manslaughter, attempted murder, assault, sexual crimes, robbery, kidnapping, possession of a weapon, and arson (Hare et al., 1988). A charge or conviction of a violent offence constituted violent failure. A charge that resulted in a subsequent conviction was counted only once as an offence. Rate of violent offending per year free in the community was calculated by counting number of violent offences counted over the follow-up period (numerator) and dividing this number by the number of years the offender spent free or on probation over the follow-up period.
(E). Sexual Offences: Offences categorized as sexual offences included indecent assault, rape, incest, buggery, bestiality, indecent act (in public), indecent exposure, sexual interference, aggravated sexual assault, and prostitution. Sex offence failures included subjects who committed at least one sexual offence (charge or conviction) during the follow-up period. A charge that resulted in a subsequent conviction was counted only once as an offence. Rate of sexual offending per year free in the community was calculated by counting number of sexual offences counted over the follow-up period (numerator) and dividing this number by the number of years the offender spent free or on probation over the follow-up period.

(F). Time in Custody and Response to Custody and Supervision: (1) Time in custody was defined as the number of months period spent in prison over the follow-up period. (2) Breach offences included failure to comply with a probation order, breach of bail, breach of probation. (3) Escape offences included escapes and attempted escapes from lawful custody.

(G). Age Related Changes in Violent Offending: There may be individual and group differences in the length of time spent in custody and, therefore, the opportunity to commit an offence. In order to account for these differences, violent offences in each age period were converted to a rate measure, number of offences per year free in the community over each age period (period 1 = ages 13-15; period 2 = ages 16-18, period 3 = 19-21). These periods refer to early adolescence, late adolescence, and early adulthood, respectively.

(H). Survival time to Violent Offence, Breach, or Escape: Offenders serving custody differ in their release dates, and therefore they differ in the amount of time that
they are at risk in the community. Survival analyses provide a powerful statistical
procedure that takes into account unequal follow-up periods. Survival analysis considers
all subjects, including those who did and did not recidivate over the follow-up period.
Because of this, it is a useful tool in correctional research. The time at risk is plotted on
the abscissa, and the probability of remaining free of charges or convictions is plotted on
the ordinate. Using this procedure, group comparisons were based on the probability of
remaining free of nonviolent, violent, and sexual offences while in the community
following release from custody over the follow-up period. Months to first nonviolent
offence was defined as the number of months following release from IAU that it took for
the subject to acquire a new charge or conviction for a nonviolent offence. Months to first
violent offence was defined as the number of months following release from IAU that is
took for the subject to acquire a new charge or conviction for a violent offence. Months
to first sex offence was defined as the number of months following release from IAU that
is took for the subject to acquire a new charge or conviction for a sex offence.

4. Data Analyses

The key data analyses included the following:

(A). Interrater reliability was assessed for PCL:YV assessments, conduct disorder
symptoms, and family background variables. Intraclass correlation coefficients is a
conservative approach to measuring interrater reliability, as it is calculated using relative
ranking and absolute values (Bartko, 1976). Intraclass correlation coefficients were
calculated as a measure of reliability for continuous variables for individual and the
average of two ratings (ICC₁ and ICC₂, respectively; Bartko, 1976). Kappa coefficients
(Cohen, 1960) were used to estimate reliability for dichotomous variables.
(B). Pearson product - moment correlations were computed to examine the relationships among PCL:YV scores, conduct disorder symptoms, and rate of violent, nonviolent and sexual offending per year free in the community.

(C). Group comparisons for continuous variables were analyzed using one-way analyses of variance (ANOVA). Post-hoc comparisons were made using Tukey’s test for pairwise comparisons. For categorical and proportional data overall comparisons were made using chi-square analyses (Fleiss, 1981). Pairwise comparisons were made using the phi coefficient (Fleiss, 1981). Linear trends for psychopathy group and offence outcome were investigated using Bartholomew’s tests of qualitatively ordered proportions (Fleiss, 1981).

(D). Repeated Measures Multivariate Analyses of Variance: In this section, the same subjects were compared to evaluate whether significant changes in mean number of violent and nonviolent offences occurred per year free in the community over the three age periods (early adolescence, late adolescence, and early adulthood), and to determine if the groups differed in their offending. The data were analyzed using separate 2 (psychopathy group) by 3 (time period) repeated measures multivariate analyses of variance (MANOVA) for violent and nonviolent offences. Where necessary, univariate tests and Tukey’s test were subsequently used. Mauchly’s test was used to assess repeated measures data for sphericity. For nonspherical data, the Huynh-Feldt Epsilon was used to adjust degrees of freedom for critical Fs used to establish significance levels.

(E). Survival Curve Analyses (Brown, 1982) estimate the time taken to reach a specified event (waiting time) and the rate of occurrence of that event (the survival function) while controlling for loss of subjects due to nonevent-related factors (censored
cases). Survival curve analyses can also be used to test for group differences in survival functions. Psychopaths, mixed group, and nonpsychopaths were compared based on the probability of remaining free of charges in the community following release from custody over the follow-up period. Survival analyses (based on the Kaplan Meier procedure, SPSS for Windows 7.5, 1997) were used to obtain the survival curves for the psychopathic, mixed, and nonpsychopathic groups for nonviolent, violent, and sexual failures. A log rank test was used for group and pairwise comparisons.

(F). Stepwise Logistic Regression Analyses were used to statistically control for demographic/background variables that have been associated with adolescent risk for violent offending, and to determine the relative contribution of these variables in predicting violent offending. The dependent variable was presence or absence of a violent failure during the follow-up period.
III. RESULTS

A. ASSESSMENTS OF PSYCHOPATHY

The mean PCL:YV score was 22.82 (SD = 7.04). Thirty-eight (24.2%) of the subjects were classified as psychopaths (PCL: YV score 29 or greater), 77 (49%) as a mixed group (PCL: YV score between 18 and 28 inclusively), and 42 (26.8%) as nonpsychopaths (PCL: YV score less than 18). Interrater reliability for PCL:YV ratings made by one rater (ICC_1) and for the ratings averaged across two PCL:YV ratings (ICC_2) were quite high (.84 and .88 respectively) and adequate for research purposes.

B. DEMOGRAPHIC AND BACKGROUND CHARACTERISTICS OF SAMPLE

Demographic and background characteristics of the sample are presented in Table 2. The files varied in terms of the amount of family information available for each offender, and detailed information about the parents was generally not available. However, the files contained sufficient information to code separation from parents and childhood history of abuse for 96% of the subjects. Intelligence scores were available for 71.3% of the subjects. Analyses of group differences indicated no difference in terms of age, offence history, or PCL:YV score for the groups that did and did not have intelligence scores available. Missing data were replaced by the mean of the group (Tabachnick and Fidell, 1996). Interrater agreement was calculated for 25 subjects for several lifestyle variables. Kappa coefficients for presence/absence of history of adoption, physical abuse, sexual abuse, emotional abuse, and self injury were .90, .79, .93, .78, and .78 respectively. The ICC_1 for individual ratings and ICC_2 for the average of two ratings for age of separation from biological mother was .89 and .94 respectively. The ICC_1 for individual ratings, and ICC_2 for the average of two ratings, for age of separation from
biological father were .94 and .97 respectively.

C. DEMOGRAPHIC AND FAMILY BACKGROUND CHARACTERISTICS BY PCL:YV GROUP

Table 3 summarizes the demographic characteristics of each PCL:YV group. There were overall differences between the psychopathic, mixed, and nonpsychopathic groups in PIQ scores ($F_{(2, 154)} = 4.46, p = .01$). Pairwise comparisons using Tukey's test of multiple comparisons revealed that psychopaths had higher PIQ scores than did nonpsychopaths ($p < .01$).

Differences between the three groups were also found in the P > V Index ($F_{(2, 154)} = 6.99, p = .001$). The psychopathic group had a greater P > V Index than the nonpsychopathic group ($p < .01$). The mixed group had a greater P > V Index than the nonpsychopathic group ($p < .05$).

There were overall differences between psychopathic, mixed, and nonpsychopathic groups in history of self-injurious behavior ($\chi^2 (2, N = 157) = 5.95, p < .05$). Psychopaths were more likely than nonpsychopaths to have a history of self-injurious behavior ($\phi = .28, p < .05$).

Differences between the three groups were found for age of separation from biological mother ($F_{(2, 154)} = 3.86 (p = .023)$ and age of separation from biological father ($F_{(2,154)} = 3.23 (p = .042$). Pairwise comparisons indicated that subjects in the psychopathic group were separated from their biological mothers at a younger age than were subjects in the mixed ($p < .05$) or nonpsychopathic groups ($p < .10$). Psychopaths were separated from their biological fathers at an earlier age than were nonpsychopaths ($p < .05$). Statistical analyses failed to reveal any other group differences in demographic
Adolescent Psychopathy

or family background characteristics.

D. PCL:YV GROUP, CONDUCT DISORDER SYMPTOMS, INDEX OFFENCE
CHARACTERISTICS, AND OFFENCE HISTORY OF THE SAMPLE

PCL:YV Total, Factor 1, Factor 2 scores, conduct disorder symptoms and
diagnoses, and offence history are shown in Table 4. The mean PCL:YV score and
standard deviation for the sample were within the range found in adult male prison
samples (Hare, 1991), and somewhat lower than the mean (M = 26.2, S.D. = 7.5) found
in a maximum security youth detention center (Forth, Hart, and Hare, 1990). All but 10
of the 157 offenders met the criteria for a conduct disorder diagnosis. In cases where
individuals had multiple index offences, each index offence was recorded separately. As
seen in Table 4, most individuals referred to the IAU had a nonviolent index offence. The
remainder had either a sexual index offence (5.7%) or some other violent index offence
(26.1%).

E. CONDUCT DISORDER SYMPTOMS, INDEX OFFENCE CHARACTERISTICS,
AND OFFENCE HISTORY BY PCL:YV GROUP

Conduct disorder symptoms and diagnoses, index offence characteristics, and
offence history for each PCL:YV group are presented in Table 5. There was a significant
group difference in the number of conduct disorder symptoms (F(2, 154) = 26.25, p <
.001). The psychopathic group presented with more conduct disorder symptoms than did
either the mixed or the nonpsychopathic group (p < .01 in each case).

Overall, there were differences between the three groups in conduct disorder
diagnoses (χ²(2, N = 157) = 7.18, p = .028). All of the subjects in the psychopathic group
met the criteria for conduct disorder. However, of the subjects who met the criteria for
conduct disorder, only 25.8% also met the criteria for psychopathy. The psychopathic group was more likely to have a conduct disorder diagnosis than was the nonpsychopathic group ($\phi = .27, p < .05$). Psychopaths were more likely than were nonpsychopaths ($\phi = .45, p < .01$) to meet the criteria for childhood onset conduct disorder diagnosis. Further, there was an asymmetrical relationship between psychopathy and childhood onset conduct disorder diagnoses. While 65.8% of the psychopathic subjects met the criteria for childhood onset conduct disorder, only 34.2% of the 73 subjects who met the criteria for childhood onset conduct disorder also met the criteria for psychopathy. The subjects in the mixed group were more likely than those in the nonpsychopathic group to meet the criteria for childhood onset conduct disorder ($\phi = .29, p < .01$). Nonpsychopaths were more likely to be diagnosed as adolescent onset conduct disorder than were the psychopaths and the mixed group ($\phi = -.30, p < .01$ and $\phi = -.19, p < .05$ respectively).

There were group differences in the number of violent offences committed prior to assessment at the IAU ($F (2, 154) = 3.44, p = .035$). Psychopaths committed a greater number of violent offences prior to admission to the IAU than did either of the other groups ($p < .05$ in each case). There were no significant group differences in terms of index offence or history of nonviolent and sexual offences.

**F. CORRELATIONS BETWEEN PCL:YV TOTAL SCORES, FACTOR 1, FACTOR 2, AND CONDUCT DISORDER SYMPTOMS AND MEASURES OF OFFENDING DURING TEN-YEAR FOLLOW-UP**

Pearson product-moment correlations between PCL:YV Total, Factor 1, Factor 2,
number of conduct disorder symptoms, and post-assessment offence rates are shown in Table 6. Total PCL:YV scores, Factor 1, Factor 2 scores ($p < .01$) and number of conduct disorder symptoms ($p < .05$) were significantly correlated with rate of violent offending.

G. RATES OF RECIDIVISM DURING TEN-YEAR FOLLOW-UP

Figure 1 shows the recidivism rates for overall offence failure, nonviolent failure, violent failure, and sexual offence failure over the ten-year follow-up period. Most subjects committed at least one offence during the follow-up period.

Separate statistical tests were used to compare the three groups on each of the four offence outcome variables (see Figure 2). Using the Bonferonni procedure to control for Type 1 error (Marascuillo and Levin, 1983), overall comparisons were tested at the $p = .10/4 = .025$ level. There were overall group differences in violent failure ($\chi^2 (2, N = 157) = 11.03, p = .004$). Psychopaths were more likely to commit a violent offence than nonpsychopaths over the follow-up period ($\phi = .36, p < .01$). The mixed group was also more likely than the nonpsychopathic group to commit a violent offence ($\phi = .20, p < .05$). Bartholomew's tests of qualitatively ordered proportions yielded a significant linear trend in violent failure rates for the three groups ($\chi^2 (2, N = 157) = 11.03, p = .005$).

There were no significant group differences for total or nonviolent offences.

Table 7 shows the mean number of offences committed per year free during the follow-up period for the sample and by each PCL:YV group. Again, separate statistical tests were used to compare the groups on each of the four offence outcome variables. To control for Type I error rate, the overall comparisons were tested at the $p = .10/4 = .025$
level. Group differences were significant for violent failure $F(2, 154) = 5.80, p = .004$.
Post hoc tests revealed that, over the follow-up period, psychopaths committed
significantly more violent offences per year free in the community than did
nonpsychopaths.

**H. TIME IN CUSTODY AND RESPONSE TO SUPERVISION DURING TEN-YEAR FOLLOW-UP**

The mean time spent in prison during the follow-up period was 2.36 years ($S.D. = 2.20$) for the entire sample, 3.06 ($S.D. = 2.33$) years for psychopaths, 2.26 ($S.D. = 2.09$) years for those in the mixed group, and 1.90 ($S.D. = 2.19$) years for the nonpsychopaths. The differences among groups were not significant ($F(2, 154) = 2.95, p = .055$).

Figure 3 depicts the percentage of individuals in each PCL:YV group with at least one breach and escape violation during the follow-up period. There was an overall group difference for commission of a breach ($\chi^2(2, N = 157) = 6.14, p = .046$), with psychopaths more likely to breach supervision than were nonpsychopaths ($\phi = .26, p = .02$).

There was an overall group difference for the percentage of subjects who escaped or attempted to escape, $\chi^2(2, N = 157) = 14.43, p = .001$. Individuals in the psychopathic group were more likely to have escaped or to have attempted an escape than were those in either the mixed group ($\phi = .23, p = .014$) or the nonpsychopathic group ($\phi = .42, p < .001$). The difference between the mixed group and the nonpsychopathic group was not significant ($\phi = .18, p = .053$).
I. AGE-RELATED CHANGES IN VIOLENT OFFENDING

Age-related changes in criminal behavior were evaluated by computing the mean number of nonviolent and violent offences per year free in the community over three age periods (early adolescence, late adolescence, and early adulthood; see table 8). The results for each group are plotted in Figure 4 (nonviolent offences) and Figure 5 (violent offences). The percentage of individuals with nonviolent and violent offences in each age period also was calculated. Table 8 also presents the percentage of subjects in each group who committed violent and nonviolent offences in each age period.

(1) Overall Effects. A MANOVA of mean number of violent and nonviolent offences per year free in the community during each of the three time periods yielded significant main effects for group \((F (4, 306) = 6.02; p < .001)\) and time \((F (4,151) = 22.08; p < .001)\). Although the group by time interaction was not significant \((F (8, 614) = 1.41; p < .19)\), visual inspection of the data (table 8) suggested that the pattern of offending was different in the three groups. As Howell (1982) has cautioned, failure to examine simple effects because the overall F lacks significance can result in the loss of important information. Simple effects analyses indicated that there was a significant age-related increase in offence rates for the psychopaths \((F (4,614) = 7.79; p < .001)\) and for the mixed group \((F (4,614) = 6.25; p < .001)\). The nonpsychopaths showed a similar trend, although after correction for nonspericity this effect was not significant \((F (4,614) = 2.38, p < .10)\).

(2) Nonviolent Offences

Univariate analyses indicated that the nonviolent offence rates changed significantly over time for the psychopaths \((F (2, 308) = 10.06; p < .001)\), the mixed
group ($F(2, 308) = 10.70; p < .001$), and the nonpsychopaths ($F(2, 308) = 4.40, p < .01$). Pairwise comparisons revealed that all three groups had significantly lower rates of nonviolent offences in early adolescence than in late adolescence or early adulthood ($p < .05$). Between late adolescence and early adulthood, the mean number of nonviolent offences stabilized for the nonpsychopathic and mixed groups, and declined for the psychopathic group ($p < .05$).

Tukey's tests failed to reveal any group differences in nonviolent offence rates in early adolescence and early adulthood. However, during late adolescence, the psychopaths committed significantly more nonviolent offences than did the nonpsychopaths ($p < .05$).

Bartholomew's test for ordered proportions indicated the linear trend in the failure rate of the three groups was significant in the late adolescent age period ($\chi^2(2, N = 157) = 4.91, p < .05$), but not in the other age periods.

Friedman's Rank Test was used to test changes in the proportion of individuals who engaged in nonviolent crime across time for the total sample and the nonpsychopathic, mixed, and psychopathic groups. Overall, there were differences in the proportion of individuals in the total sample engaging in nonviolent crimes across the three time periods ($\chi^2(2, N = 157) = 27.4, p < .001$). Wilcoxon's matched-paired signed-ranks test was used for pairwise comparisons. From early adolescence to late adolescence there was a significant increase in the proportion of individuals engaging in nonviolent crimes ($Z = 4.91, p < .001$). This was followed by a decrease from late adolescence to early adulthood ($Z = 3.66, p < .001$).

There were differences in the proportion of nonpsychopaths who engaged in
nonviolent crime across time ($\chi^2 (2, N = 42) = 6.13, p < .05$). Amongst nonpsychopaths, there was an increase in the proportion of individuals with a nonviolent offence between early and late adolescence ($Z = 1.9, p = .05$). The change between late adolescence and early adulthood was not significant. Amongst the psychopaths there was a change in the proportion of individuals with nonviolent offences over time ($\chi^2 (2, N = 38) = 6.55, p < .05$). There was an increase in the proportion of psychopaths charged or convicted with a nonviolent offence between early adolescence and late adolescence ($Z = 2.45, p = .014$). This was followed by a significant decrease between late adolescence and early adulthood ($Z = 2.12, p = .034$). Within the mixed group, there was a significant change across time in the proportion of individuals who committed a nonviolent offence ($\chi^2 (2, N = 77) = 6.55, p < .05$). There was an increase in the proportion of individuals who engaged in nonviolent crime between early adolescence and late adolescence ($Z = 3.92, p < .001$), followed by a significant decrease, between age late adolescence and early adulthood ($Z = 3.64, p < .001$).

(3) Violent Offences

Univariate analyses indicated that the rates of violent offending changed significantly for the psychopaths ($F (2, 308) = 9.95; p < .001$) and for the mixed group ($F (2, 308) = 7.97; p < .001$), but not for the nonpsychopaths ($F (2, 08) = .88; p > .41$). Pairwise comparisons revealed that the psychopaths and the mixed group were both significantly more violent during late adolescence and early adulthood than during early adolescence. Nonpsychopaths were more violent in early adulthood than in early adolescence.

Tukey's tests revealed that, in early adolescence, the psychopathy group was
significantly more violent than either the mixed group or the nonpsychopaths ($p < .05$). In late adolescence, the psychopathy group was again significantly more violent than either the mixed group or the nonpsychopaths ($p < .05$). In addition, during these years, the mixed group was significantly more violent than the nonpsychopaths ($p < .05$). By early adulthood, the mixed group was no longer more violent than the nonpsychopaths. While the psychopaths were not significantly more violent than the mixed group in early adulthood, they did remain more violent than the nonpsychopaths ($p < .05$).

Changes in the proportion of individuals who engaged in violent failure rates were investigated using Bartholomew's tests of qualitatively ordered proportions at each of the three age periods. The percentages of individuals who engaged in violent offences at each age period are presented in Table 8. The linear trend (over groups) for violent recidivism was significant during early adolescence ($\chi^2 (2, N = 157) = 7.06, p < .01$), late adolescence ($\chi^2 (2, N = 157) = 22.12, p < .005$), and early adulthood ($\chi^2 (2, N = 157) = 5.11, p < .05$).

Friedman's Rank Test was used to test changes in the proportion of individuals who engaged in violent crime across time for the total sample, nonpsychopathic, mixed, and psychopathic groups. Overall, there were differences in the proportion of individuals in the total sample engaging in violent crimes across the three time periods ($\chi^2 (2, N = 157) = 21.4, p < .001$). Wilcoxon's matched-paired signed-ranks test was used for pairwise comparisons. From early adolescence to late adolescence there was a significant increase in the proportion of individuals engaging in violent crimes ($Z = 4.39, p < .001$). This was followed by a nonsignificant decrease from late adolescence to early adulthood.

There were no significant differences in proportion of nonpsychopaths who
engaged in violent crime across time. Amongst psychopaths, there was a change in the
proportion of individuals charged or convicted of violent offences over time ($\chi^2 (2, N = 38) = 6.50, p = .039$). There was an increase in the proportion of psychopaths charged or
convicted with a violent offence between early adolescence and late adolescence ($Z = 2.40, p = .016$). The change in the number of individuals who engaged in a violent
offence between late adolescence and early adulthood was not significant. Within the
mixed group, the change over time was significant ($\chi^2 (2, N = 77) = 18.39, p = .001$).
There was a significant increase in the proportion of individuals who engaged in violent
crime between early adolescence and late adolescence ($Z = 4.11, p < .001$), followed by a
significant decrease, between late adolescence and early adulthood ($Z = 2.12, p < .034$).

**J. SURVIVAL ANALYSES**

(1). *Survival Time to First Violent Offence*

Survival analyses (based on Kaplan Meier procedure, SPSS WINDOWS 7.5; 1997) were used to obtain the survival curves for the psychopathic, mixed, and
nonpsychopathic groups for nonviolent, violent, and sexual offences. The cumulative
survival function represents the proportion of subjects remaining free of offences in each
group, as a function of time since release from custody. A log rank test revealed that the
survival functions for the three groups were significantly different only for the violent
offences ($\chi^2 (1, N = 157) = 20.86, p < .0001$; see Figure 6). Psychopathic subjects were at
greater risk of violent offending during follow-up than those in the mixed group ($\chi^2 (2, N
= 157) = 5.48, p < .019$) or in the nonpsychopathic group ($\chi^2 (1, N = 157) = 22.29, p < .0001$). The mixed group was at greater risk of violent failure during the follow-up period.
than was the nonpsychopathic group ($\chi^2 (2, N = 157) = 8.20, p < .004$). The average number of months before violent failure was 65.11 (S.E. = 3.75) for the entire sample, 94.88 months (S.E. = 5.87) for the nonpsychopaths, 91.68 (S.E. = 9.99) months for the mixed group, and 42.26 months (S.E. = 6.80) for the psychopaths. For sex offences, the group differences in survival function approached significance ($\chi^2 (2, N = 157) = 3.33, p < .07$). There were no group differences in the survival functions for nonviolent offences.

In a supplementary analysis, psychopaths with and without a history of violent offences were compared to nonpsychopaths with and without a history of violent offences (see Figure 7). This survival analysis was conducted in order to determine if psychopathy was a predictor of violent offences in a group of offenders with no official history of violent offending. The mean time to first violent offence for nonpsychopaths without and with a violent history was, respectively, 93.48 months (S.E. = 6.89) and 98.00 months (S.E. = 10.94). For psychopaths without and with a violent history, the mean time to first violent offence was, respectively, 42.72 months (S.E. = 10.14) and 40.80 months (S.E. = 8.66). A log rank test revealed that there was a significant group difference in survival function ($\chi^2 (3, N=157) = 17.09, p < .0001$). However, as seen in Figure 7, the differences were entirely between the psychopathic and nonpsychopathic groups.

Previously nonviolent nonpsychopaths were at significantly lower risk to violently offend than were previously nonviolent psychopaths ($\chi^2 (2, N = 157) = 11.33, p < .0008$) or previously violent psychopaths ($\chi^2 (2, N = 157) = 14.13, p < .0002$). Similarly, previously violent nonpsychopaths were at significantly lower risk to violently offend than were previously nonviolent psychopaths ($\chi^2 (2, N = 157) = 8.14, p < .004$) or
previously violent psychopaths ($\chi^2 (2, N = 157) = 9.08, p < .002$).

Psychopaths who had no previous record of violence presented the same risk for violence in the follow-up period as psychopaths who had a history of violence ($\chi^2 (2, N = 157) = .00, p < .95$). Psychopathy was a strong predictor of violence, independent of previous history of violence.

(2). *Survival Time to Breach of Supervision and Escape from Custody*

Survival analyses were performed to determine the proportion of breaches and escape attempts during periods of supervision and custody during the follow-up time. The mean number of months to first breach for nonpsychopaths was 51.02 (S.E. = 8.23), 33.23 (S.E. = 5.19) for the mixed group, and 30.83 (S.E. = 6.22) for the psychopathic group.

A log rank test revealed that the survival functions for the three groups were different ($\chi^2 (1, N = 157) = 4.40, p = .036$). Nonpsychopathic subjects were at a lower risk for breach of supervision during follow-up than were those in the mixed group ($\chi^2 (1, N = 157) = 3.82, p = .05$) or the psychopathic group ($\chi^2 (1, N = 157) = 4.40, p = .036$). (see Figure 8). The mean number of months to escape or attempted escape was 99.43 (S.E. = 7.08) for the nonpsychopaths, 79.69 (S.D. = 6.23) for the mixed group, and 52.46 (S.D. = 50.73) for the psychopaths. Survival curves representing escapes and attempted escapes for each of the three groups are plotted in Figure 9. Once again, a log rank test revealed that the survival functions for the three groups were significantly different ($\chi^2 (1, N = 80) = 16.77, p = .0001$). Psychopathic subjects were at greater risk of escaping or attempting
to escape during follow-up than were those in the mixed group ($\chi^2 (1, N = 157) = 7.11, p = .007$) or those in the nonpsychopathic group ($\chi^2 (1, N = 157) = 16.7, p = .001$). In turn, the mixed group was at greater risk of escaping or attempting an escape during the follow-up period than was the nonpsychopathic group.

K. LOGISTIC REGRESSION ANALYSES

Table 9 compares the background and family history variables of subjects who reoffended violently with those subjects who did not violently reoffend. Items that differentiated between subjects with and without a violent outcome (at the $p < .05$ level) included PCL:YV Total score, Factor 1 score, Factor 2 score, number of conduct disorder symptoms, history of violent offences, PIQ, P > V Index, and history of self-directed aggression.

In order to investigate the relative contributions of risk factors to the prediction of violent offending in the follow-up period, logistic regression analyses were completed. Because of the problems related to multicollinearity in regression analyses (i.e. redundancy and the resulting difficulties in interpretation when using highly correlated predictor variables; Tabachnick and Fidell, 1996), the contributions of Factor 1 and Factor 2 ($r$'s with total PCL:YV score = .89 and .86 respectively) were examined in a separate analysis.

Each of the background and family variables was entered into a forward stepwise logistic regression; the results are presented in Table 10. The PCL:YV Total score, history of self-directed aggression, and P > V Index, (in that order) entered into the equation to predict violent failure. Together, this model correctly classified 72.61% of
violent failures (Positive Predictive Power (PPP) = 75.4%). A test of the full model with all four predictors against a constant-only model was statistically significant, $\chi^2(3, N=157) = 24.88, p < .001$, indicating that the predictors significantly distinguished between violent failures and subjects who did not fail violently during the follow-up period.

In a second forward stepwise regression, Factor 1 and Factor 2 were entered into the equation, along with history of violent offences, age at first offence, PIQ, P > V Index, number of conduct disorder symptoms, history of self directed aggression. Factor 2, history of self-directed aggression, and P > V Index, entered into the regression equation and were associated with violent failure. Together, this model correctly classified 75.8% of violent failures (PPP = 76.7%). A test of the full model with all four predictors against a constant-only model was statistically significant, $\chi^2(3, N=157) = 26.62, p < .001$, indicating that the predictors significantly distinguished between violent failures and subjects who did not fail violently in the follow-up period.

I. COMPARISON OF VIOLENT AND NONVIOLENT PSYCHOPATHS

Table 11 summarizes demographic and family background characteristics of the psychopaths and nonpsychopaths with and without a violent outcome during the follow-up. In order to differentiate between psychopaths who had a violent outcome and psychopaths who did not have a violent outcome, planned comparisons were conducted between the two groups on demographic and family background variables. Group differences ($p < .05$) were found in age of first offence ($t = 2.44, p = .02$). Violent psychopaths were younger than nonviolent psychopaths at the time of their first officially recorded offence. Violent psychopaths were younger than nonviolent psychopaths at the
time of assessment at the IAU (t = 3.51, p = .002). Violent psychopaths had significantly lower VIQ scores than nonviolent psychopaths (t = 2.45, p = .02). Further, violent psychopaths had a greater P > V Index than nonviolent psychopaths (t = 2.52, p = .02). Violent psychopaths were more likely than nonviolent psychopaths to have a history of self harm (ϕ = .33, p = .04). Finally, nonviolent psychopaths were more likely than violent psychopaths to present with a history of physical abuse (ϕ = -.41, p = .01). Statistical analyses failed to reveal any other group differences in demographic or family background characteristics.
IV. DISCUSSION

A. Assessment of Psychopathy in Adolescent Offenders

The construct of psychopathy was investigated in adolescent offenders and their offence patterns were examined longitudinally from early adolescence into adulthood. The results confirm that psychopathy can be measured reliably in adolescence and that assessments of psychopathy in adolescent offenders can provide useful predictions about the course of antisocial and violent behavior.

The base-rate for psychopathy (24.2%) among adolescents referred by the courts for assessment at the forensic psychiatric inpatient assessment unit was lower than the 34-38% range found in incarcerated samples of adolescents (Brandt et al., 1997; Forth et al., 1990; Forth, 1996). This is not surprising, given that incarcerated adolescents generally have committed very serious offences. Toupin et al. (1996) found that among boys receiving treatment in rehabilitation centers, day centers, or special education programs, the mean PCL-R score was 17. The base-rate for psychopathy in the present sample indicates that adolescents sent to a forensic psychiatric inpatient unit are less serious offenders than those sentenced to a period of detention, but more serious than adolescents treated in non-forensic treatment and rehabilitation programs.

B. Recidivism Amongst Adolescents Referred by the Courts for Psychological Assessment

Almost all (97%) of the offenders in the current sample reoffended during the follow-up period. Although this reoffence rate seems very high, it is consistent with
Farrington's (1995) report of a high base-rate for generalized offending among adolescent offenders. Adolescence marks an increase in the number of people who are involved in antisocial behavior (Farrington, 1983). Moffitt (1993) observed that between about ages 11 and 15, about a third of adolescents in her cohort study exceeded normative levels of antisocial behavior. This marked a dramatic increase from the 5% of individuals who exceeded normative levels of antisocial behavior before age 11. Empirical investigations show that the peak in offending seen between ages 15 and 17 reflects a temporary increase in the number of individuals involved in antisocial behavior (Farrington, 1983). By their mid-20s at least three quarters of offenders cease all offending (Farrington, 1986). That is, for most adolescents, involvement in antisocial behavior is transitory.

The rate of violent offending (almost 70% for the entire sample) was also very high. As a group, the youth in the sample demonstrated a high risk for recidivism. The offenders in the sample had been referred for psychological assessment under section 13 of the Young Offenders Act (YOA) of Canada. According to section 13, a judge has the authority to order the medical and psychological examination of a young person before the courts. Assessments may be ordered to assist in the decision as to whether the young person should be transferred to adult court, to determine whether the individual is suffering from a mental disorder and is unfit to stand trial, and to make or review a disposition.

Jack and Ogloff (1996) conducted a study comparing youths who were referred by the courts for psychological assessment under section 13 to nonreferred youths. They found that referred youths represent only about 2 percent of adolescent offenders who are
processed through the courts in British Columbia. As a group, offenders who are referred by the courts under section 13 tended to have had contact with the court system at a younger age than nonreferred young offenders. Referred young offenders were more likely than nonreferred young offenders to present to the court with charges for a number of current offences. Referred youths were more likely than nonreferred youths to be charged with a crime against a person. There were no differences between the groups in the number of prior convictions or court appearances. The findings from the present study suggest that young offenders who are identified and selected by the courts under section 13 for referral for psychiatric assessment are, indeed, at high risk for recidivism.

As a whole, the sample generally was at high risk for recidivism, although the risk of reoffending changed with age. Nonviolent offending increased from early to late adolescence, then stabilized from late adolescence to early adulthood. Further, the proportion of individuals charged with nonviolent offences gradually decreased over time. Similarly, there was an increase in the proportion of individuals who engaged in violent crime from early to late adolescence. Again, however, the proportion of the sample who committed a violent offence stabilized from late adolescence to early adulthood. These findings are consistent with data on age and crime, which indicate that the peak age of offending is about 17 years (Hirschi and Gottfredson, 1983).

C. Psychopathy and the Prediction of Violence in Adolescent Offenders

Moffitt, Caspi, Dickson, Silva, and Stanton (1996) argue that researchers who study cross-sections of antisocial behavior lose sight of the different outcomes of the childhood-onset and the adolescent-limited subtypes. One of the responsibilities facing
mental health professionals who conduct assessments for the courts and who make recommendations regarding disposition is to differentiate between subtypes of offenders according to their risk for long term antisocial behavior and to make recommendations for appropriate forms of intervention. As Moffitt et al. (1996) point out, life-course persistent boys cannot be discriminated from adolescent-limited boys solely on the basis of the contemporary information typically available to researchers and practitioners. The current study, along with other research on adolescent psychopathy (Brandt et al., 1997; Forth et al., 1990; Forth, 1996, Toupin et al., 1996), represents a step towards the goal of meaningfully differentiating among subtypes of offenders based upon information that is collected at the time the offender presents for assessment.

In the present study, psychopathy, as measured by the PCL:YV, predicted violent offending throughout the entire follow-up period. Within each age period (early adolescence, late adolescence, and early adulthood), the relationship between scores on the PCL:YV and indices of violent offending was positive and linear. That is, psychopathic offenders were more violent than other offenders from early adolescence to early adulthood, suggesting that the propensity to violence of the adolescents in this sample was a relatively stable individual characteristic. These results are in line with those obtained in longitudinal studies of juvenile antisocial behavior. After reviewing these studies, Loeber and Farrington (1997) concluded that the rank ordering of individuals (with respect to aggressive behavior) stayed constant over several decades.

All three groups of offenders showed an increase in the rate of nonviolent offending from early (age 13-15) to late (age 16-18) adolescence, and into early adulthood (age 19-21), although the proportion of nonviolent offenders actually
stabilized or declined from late adolescence to early adulthood. The only significant
difference between the groups occurred during late adolescence, when psychopaths
committed more nonviolent offences than did nonpsychopaths. Interestingly, these are
ages defined by cohort studies as a time of peak offending for adolescent offenders
This is also the age when it is most difficult to differentiate between antisocial behavior
that is likely to be limited to adolescence and behavior that represents part of a pattern of
antisocial behavior likely to persist over the life span (Moffitt et. al., 1996). Overall,
however, the present findings suggest that although adolescent psychopaths continue to
engage in high rates of nonviolent crime as they approach adulthood, it is their propensity
for violence that distinguishes them from other adolescent offenders.

The survival analyses revealed that the psychopathic adolescents violently
offended much earlier following release from custody than did the other adolescent
offenders. Moreover, an early violent failure following release was as characteristic of
psychopathic offenders without a previous history of violence as it was of those with a
history of violence. Like their adult counterparts, adolescent psychopaths appear to be at
high risk for violence even when they have no formal or documented history of violent
offences. It is, of course, possible that such individuals may have engaged in violent and
aggressive behaviors when younger, but simply managed to avoid detection and
prosecution.

The sexual offence rate during follow-up was much lower than the rates for other
violent offences and for nonviolent offences. This is not surprising given that, even
among adolescents convicted of a sexual offence, there is a much greater probability that
subsequent offences will be nonsexual than sexual in nature (Gretton et al., 1995). Nevertheless, as with other types of criminal activities, the psychopathic adolescents in this study tended to commit their sexual offences more quickly following release from custody than did other adolescent offenders. Similar findings have been reported for adult offenders (e.g. Quinsey, Rice, and Harris, 1995), again suggesting that adolescent and adult psychopaths are very much alike in terms of their propensity to break the law.

Although there are many risk factors for crime and violence, the present results clearly indicate that, within an adolescent sample, psychopathy is by itself a potent risk factor, as it is with adult offender and forensic psychiatric populations (Hemphill et al., 1998; Hodgins, 1993; Salekin et al., 1996). Thus, the PCL:YV made a unique and significant contribution to the prediction of violence. A combination of the PCL:YV, a history of self-directed aggression, and a large difference between performance and verbal IQ (P > V Index; discussed in more detail below), correctly predicted 72.6% of the violent failures. This combination of three variables predicted violent failure over and above a variety of demographic and criminal history variables, including age of onset of offending, history of violence, and number of conduct disorder symptoms.

**D. Response to Custody and Supervision**

Adolescent psychopaths differed from nonpsychopaths in their response to custody and supervision. Over the follow-up period, were more likely to breach their conditions of probation than were nonpsychopaths. More striking, however, was the finding that psychopaths were much more likely to escape from custody than were other adolescent offenders. This is consistent with the adult literature, which links adult
Adolescent Psychopathy

psychopathy to poor response to custody and supervision (e.g., Hart, Kropp, and Hare, 1988).

E. Psychopathy and Childhood Onset Conduct Disorder

The prevalence of conduct disorder in the present sample (about 94%) was much higher than was the prevalence of psychopathy (about 24%). Although there was overlap between psychopathy and childhood onset conduct disorder, the two measures did not identify the same subgroup of offenders and likely do not measure the same constructs. There was an asymmetrical relationship between conduct disorder and psychopathy and also between childhood onset conduct disorder and psychopathy. Thus, all of the psychopaths met the criteria for conduct disorder, while only 24% of the subjects who met the criteria for conduct disorder also met the criteria for psychopathy. About two-thirds of psychopaths met the criteria for childhood onset conduct disorder. Conversely, only about one-third of subjects who met the criteria for childhood onset conduct disorder also met the criteria for psychopathy. The correlation between psychopathy measures (PCL:YV Total score, Factor 1, Factor 2) and number of conduct disorder symptoms was moderately high (.49, .42, .39 respectively), but again, there was not direct overlap between the two measures. Together, these findings indicate that psychopathy and conduct disorder are related but different constructs. Virtually the same findings were obtained by Forth et al. (1990) in their study of incarcerated adolescent offenders. This asymmetric relationship between psychopathy and conduct disorder is analogous with the asymmetric relationship between psychopathy and a DSM-III-R diagnosis of antisocial personality disorder (Hare, 1991).

The explanation for the asymmetric relationship between psychopathy and
conduct disorder lies in the nature of the criteria for the two disorders. Psychopathy, as measured by the PCL:YV, differs from the DSM-IV criteria for childhood onset conduct disorder in at least two key respects. First, the PCL:YV measures inferred affective/interpersonal (Factor 1) characteristics as well as antisocial behaviors (Factor 2). Secondly, each Factor 1 item is scored on a 3-point scale (0, 1, 2), according to information concerning the presence, severity, and stability of the inferred characteristic over time and situations. In contrast, conduct disorder is a behaviorally-based diagnosis. It reflects a more globalized measure of antisocial behavior based on the presence or absence of a number of rather specific behaviors, rather than a range of symptomatology across time and situations. Further, individuals who demonstrate any of the symptoms of conduct disorder prior to age ten qualify for a diagnosis.

Moffitt et al. (1996) have argued that reliance on behavioral data, even when historical information is available, is likely to lead to an overestimation of antisocial outcome. Consistent with Moffitt et al.'s (1996) observations, a diagnosis of childhood onset conduct disorder, which relies on the presence of a single item prior to the age of 10, may limit the utility of the diagnosis in differentiating between adolescent limited and life-course persistent patterns of delinquency. In the present study, neither childhood onset nor adolescent onset conduct disorder diagnoses, as defined by the DSM-IV, were significantly associated with violent outcome. In contrast, adolescents identified as psychopaths by the PCL:YV were more violent than their nonpsychopathic counterparts during adolescence and into adulthood.
F. Risk Factors and Psychopathy: Unmasking the Violent Psychopath

Although the present study indicates that adolescent psychopathy is a risk factor for violent recidivism, not all of the psychopaths went on to commit a violent offence, at least not one that led to a formal charge. In order to provide some insight into the difference between violent and (apparently) nonviolent psychopaths, they were compared on a number of demographic, background, and outcome variables. Some interesting findings emerged. Psychopaths who committed at least one violent offence during the follow-up period were younger than psychopaths who did not commit a violent act, both at the time of their assessment at the IAU and at the time of their first officially recorded offence. Cognitively, violent psychopaths scored lower on verbal intelligence measures than did other psychopaths. The discrepancy between verbal and performance IQ (P > V Index) was greater for violent than for nonviolent psychopaths. The significance of this finding is discussed below.

Psychopathy, Performance - Verbal Index, and Violence

The contribution of the P > V Index to the prediction of violent outcome is consistent with extensive reports of its role, along with other verbal deficits, as a risk factor for antisocial and aggressive behavior (e.g. Cornell and Wilson, 1992; Haynes and Bensch, 1981; Lynam, Moffitt, and Stouthamer-Loeber, 1993; Moffitt, 1993; West and Farrington, 1973). Lynam et al. (1993) reported that performance IQ was about 8 points higher than verbal IQ in delinquents and about 2.5 points higher in nondelinquents. Performance IQ was about 7 points higher than verbal IQ for the sample of young offenders in this study and about 11.5 points higher in the psychopaths.
The finding that psychopathy was unrelated to overall IQ scores is consistent with the adult literature (Hart, Forth, and Hare, 1990; Smith, Arnett, and Newman, 1992). Christian et al. (1997) investigated a sample of children clinically referred for emotional or learning problems between the ages of 6 and 13. They found that children who showed callous and unemotional traits (termed psychopathic conduct disordered) had higher intelligence scores than did children with impulsive conduct problems. They argued that lower intelligence, hypothesized to play a role in the development of conduct problems, may not play the same role in children with conduct problems who also show callous and emotional traits. Unfortunately, the authors did not look at performance and verbal functioning separately. Although the callous and unemotional group may have appeared to be functioning at a higher global level than the impulsive conduct disorder children, the overall score may have masked an underlying discrepancy between performance and verbal IQ. Further research will help to clarify this issue.

The cognitive findings in the present study are consistent with the view that deficits in verbal/executive functioning, linguistic processing, and response modulation underlie severe delinquency in general and psychopathy in particular (Hare, 1998; Moffitt, 1993; Moffitt, Lynam, Silva, 1994; Patterson and Newman, 1993). Moffitt (1993) suggests that neuropsychological deficits in verbal and executive functions are linked to persistent antisocial behavior that begins in childhood. Moffitt found evidence of neuropsychological deficits reflecting dysfunctions in abstract reasoning, language comprehension, and executive functioning in subjects who had histories of extreme antisocial behavior that persisted from age 3 to age 15. Symptoms of inattention, overactivity, and impulsivity were linked to childhood emergence of aggressive antisocial
behavior. In turn, these symptoms increased the child's vulnerability to criminogenic aspects of the social environment. Moffitt (1990) found an interaction among children's neuropsychological deficits, family adversity, and aggressive confrontation with a victim. Boys who had a combination of attention deficit disorder and delinquency had relatively low verbal intelligence test scores, low reading scores, and adverse home environments.

Patterson and Newman (1993) recently devised a model to explain the difficulties that psychopaths have in regulating their behavior. The response modulation hypothesis (Newman, 1997; Patterson and Newman, 1993) attributes the self-regulatory problems of psychopaths to reduced capacity to shift attention from the effortful organization and implementation of goal-directed behavior to its evaluation and modification. The four-stage model was developed to distinguish between the hypothesis that psychopaths have a deficit in modulating a response and a model that focuses on insensitivity to punishment (Gray, 1987; for a recent review see Newman, 1997). In psychopaths, their disinhibited behavior is most evident in situations that require them to suspend approach behavior in reaction to a cue for punishment. However, psychopaths perform as well as others when avoidance contingency is salient from the outset.

The response modulation hypothesis suggests that once psychopaths are engaged in effortful and goal-directed behavior, they become relatively unaffected by environmental cues that prime associations and enhance perspective-taking. Newman (1997) suggests that perspective taking may be essential for good judgement and self-regulation (Newman, 1997). Presumably, revision of response strategies is at least partly verbally mediated. The findings of the present study are consistent with Patterson and Newman's response modulation hypothesis: Psychopathic individuals with average
capacity for nonverbal reasoning, but relatively weak verbal resources, may have
difficulty in the effective use of verbal processes that ordinarily would modulate
behavior.

Cognitive conceptions of psychopathy also suggest that abnormalities in affective
and linguistic processes underlie the disorder (for review see Hare, 1998). One way in
which psychopaths differ from nonpsychopaths appears to be in the lateralization of
linguistic processing (Hare, 1998). For example, Jutai and Hare (1983) found that
psychopathic criminals demonstrated a (normal) left hemisphere superiority for
recognition of verbal stimuli, but an unusual right hemisphere superiority for categorizing
information into a semantic class, whereas nonpsychopaths showed a consistent left
hemisphere superiority for linguistic processing. Hare and Jutai (1988) found that as
verbal tasks became increasingly more complex, nonpsychopaths relied more on their left
hemispheres for processing, whereas psychopaths relied on their right hemispheres. Weak
lateralization in verbal processes has also been observed in adolescent psychopaths
(Raine, O’Brien, Smiley, Scerbo, and Chan, 1990). There is also some evidence that
affective processes are not normally lateralized in psychopaths (e.g., Day and Wong,
1996).

There is recent evidence (see Hare, 1993, 1998) that psychopaths are unwilling or
unable to process the deep semantic and affective meanings of language, possibly
because of dysfunction in the orbito-frontal cortex (LaPierre, Braun, and Hodgins, 1995). Their linguistic and affective processes appear to be relatively superficial and the
abstract/affective meanings of language seem to escape them (Gillstrom, 1994; Intrator et
al., 1997; Williamson, Harpur, and Hare, 1991). Williamson (1991) scored narratives of
male offenders for coherency and cohesion of discourse. She found that psychopaths demonstrated more than a normal amount of logical inconsistencies, contradictions, and neologisms, and showed a tendency to go “off track”. However, as Hare (1993) suggests, these cognitive and linguistic processes go undetected because of the psychopath’s ability to use eye contact, body language, and charm to distract the listener.

The finding of a larger P > V Index amongst psychopaths, as compared with nonpsychopaths, is in keeping with laboratory evidence, suggesting unusual patterns of linguistic processing. The results of the current study are exploratory at this point and need to be replicated among samples with larger subgroups of nonviolent psychopaths. Research exploring cognitive mechanisms underlying psychopathy may help to increase our understanding of the association between psychopathy and violence.

**Psychopathy, Self-Harm, and Violence**

In the current study, a history of self-directed aggression was related to psychopathy. When psychopathy and other demographic and historical variables were controlled, a history of self-harm was an independent predictor of later violence. Further, violent psychopaths were more likely than nonviolent psychopaths to have histories of self-directed aggression.

These findings are in keeping with other studies that have revealed a relationship between self-directed and other-directed aggression (see Plutchik and Van Praag, 1997, for review). Suicidality in adolescents has been linked to aggressive behavior towards others (Garrison, McKeown, Balois, and Vincent, 1993). Investigators studying the biochemical correlates of aggression have linked a functional deficit in serotonergic functioning to impulsive suicidal and aggressive behavior. It has been suggested that
dysfunction in the serotonergic system mediates poor impulse control, which may, in turn, be associated with both self-directed and other-directed violent outbursts (for review see Berman, Kavoussi, and Coccaro, 1997). Preliminary studies investigating the role of serotonergic functioning in psychopaths suggest a relationship between psychopathy and serotonergic dysfunction (Gretton, Smith, Brink, and Hare, 1997; Newlove, Gretton, and Hare, 1991). It is not yet known whether the relationship between aggression and serotonergic functioning is primarily related to a global deficit in impulsivity or whether it is specific to psychopathy.

**Psychopathy, Family Background, and Violence**

No differences were found between psychopaths and nonpsychopaths and a history of physical, sexual, and emotional abuse. Studies examining the relationship between psychopathy and abuse have yielded mixed results. Forth (1996) found no differences between psychopaths and nonpsychopaths and history of abuse. However, when a global rating was used, she did find that psychopaths were more likely than nonpsychopaths to come from adverse family backgrounds. Luntz and Widom (1994) found that victims of child abuse had higher PCL-R scores than a group of nonabused and nonneglected individuals. McBride, Gretton, O'Shaughnessy, and Hare (1994) found that, in a group of adolescent sex offenders, a history of physical abuse was associated with adolescent psychopathy, but not with subsequent recidivism. Two studies on the association between family background and early criminality in adult criminal psychopaths suggest that poor family background is strongly related to criminal behavior for nonpsychopaths, but not psychopaths (Devita, Forth, and Hare, 1990; Hare, McPherson, and Forth, 1988b).
In the present study no relationship was found between abuse history and violent outcome. These findings are contrary to several studies that have associated childhood abuse and neglect with risk for antisocial behavior and aggression (Ammerman, Cassisi, Hersen and Van Hasselt, 1986; Luntz and Widom, 1994; Rogeness, Amrung, Macedo, Harris, and Fisher, 1986; Widom, 1989). However, the relationship between abuse and violence is not clear-cut. Widom (1989) concluded that there was limited support for the conclusion that abused children will necessarily become violent. Although the abused children were at higher risk, the majority of abused individuals in her cohort study did not become violent. Gutierres and Reich (1981) found that abused delinquents were less likely to become violent than nonabused controls.

No direct relationship was found between abuse and violent outcome in the present sample. However, when psychopaths who had a violent outcome were compared with psychopaths without a violent outcome, differences were found in their abuse history. Forth (1996) has suggested that although there is no good evidence that abuse is related to the core aspects of the psychopathic personality, background experience may influence the behavioral manifestations of the disorder. To support this assertion, we would expect that violent psychopaths would be more likely to have a history of abuse than nonviolent psychopaths. However, the reverse was found. Nonviolent psychopaths were more likely to have histories of physical abuse than violent psychopaths.

This finding seems paradoxical, given the relationship between physical abuse, unstable family background and psychopathology and aggression (e.g. Ammerman, Cassisi, Hersen and Van Hasselt, 1986; Luntz and Widom, 1994; Widom, 1989). However, it would be faulty to assume that lack of evidence of abuse among violent
psychopaths translates to stability of care, appropriate supervision, or lack of family
distress. Psychopaths were separated from their biological mothers and fathers at a
younger age than were nonpsychopaths. Early separation from biological parents
amongst psychopaths suggests instability in the structure of their families.

Unstable family structure has been associated with adolescent aggression. In a
prospective study, Ensminger, Kellam, and Rubin (1983) found that first grade family
structure was associated with aggression at age 16. That is, boys from a high-risk family
structure (families with mother present, but no second adult present, such as father,
grandmother, or aunt) were at higher risk for adolescent aggression than boys from a low-
risk family structure (boys in a family structure with another adult present such as father,
grandfather, or aunt). Webster-Stratton and Hammond (1988) reported that higher
maternal parenting stress is associated with more externalizing and internalizing
behavior. Whether the psychopaths' early separation from biological parents reflects
adverse family backgrounds, parental distress, parental or child psychopathology, or a
combination of these factors is not yet known.

At this point, the relationship between psychopathy, family background, and
violence is not well understood. These interpretations need to be considered with caution
and in the context of the limitations of the findings. The conclusions are limited by the
lack of verification of sources of reports of physical, emotional, and sexual abuse; lack of
control in terms of the quality and consistency of file information and evaluations of
abuse; and the lack of external verification as to the presence or absence of abuse
(Widom, 1997). Prospective research using well-defined measures of parenting and
abuse, and larger numbers of nonviolent psychopaths, are needed to further understand
the relationship between psychopathy, family stability, and aggression.

G. Methodological Issues

Loeber and Farrington (1997) argue that high-risk samples are good starting points for longitudinal studies of onset, escalation, and offset of criminal behavior. However, individuals who are referred by the courts for psychological assessment represent a small proportion of offenders who go through the system. We do not know the extent to which these findings generalize to the other approximately 98% of adolescent offenders who are processed through the courts. Jack and Ogloff (1996) report that young offenders who are referred by the courts for psychological or psychiatric assessment are more likely to be white than offenders who are not referred. This limits the generalization of the present findings to other racial/ethnic groups. Further, the extent to which the observations made in the present study generalize to female adolescent offenders is not known. Similarly, follow-up information was not available for all of the subjects. Although they did not appear to differ in terms of available general demographic information, we do not know if subjects for whom follow-up information was not obtained, differed systematically from subjects for whom follow-up data was obtained. Given that results were reported for almost 90% of the subjects, attrition does not appear to be a serious factor limiting the validity of the results. Assessment of psychopathy in the context of a longitudinal cohort study will provide an opportunity to determine the extent of overlap between psychopathy and the life-course-persistent offenders previously described in the literature.
A retrospective longitudinal design was used in the present study. Longitudinal research provides observations of individuals over an extended period of time. This is especially useful in the study of adolescent psychopathy, since little is known about the early course and nature of psychopaths' offending careers. Longitudinal research allows for analyses of several factors of the psychopath's criminal career, including age of onset, rate and continuity in offending, and latency between release into the community and subsequent offending. The longitudinal aspect of the retrospective follow-up design allows one to collect target information on individuals spanning several years; yet, this information can be collected over a relatively short period of time. In terms of budgetary and time restraints, the retrospective follow-up design provides a relatively efficient method of collecting longitudinal data, and may be especially useful as an early component of a long term research strategy. While providing valuable information, the retrospective study may be used to guide research questions and develop methodology for prospective studies.

One potential disadvantage of the retrospective design is that the researcher is not able to specify research questions in advance and be sure that the information necessary to answer the questions is collected. In retrospective designs, the quality of the file records, and the potential for unsystematic recording of data into the file records (Loeber and Farrington, 1997) limit the researcher. In the present study, this weakness was evident in the investigation of family background variables. Factors such as parenting styles, parental substance abuse, and parental antisocial behavior could not be addressed because of lack of information. These factors may limit the interpretation of results and comparability between studies. These issues also underline the need for prospective
evaluations. In prospective studies appropriate measures can be selected and
systematically administered. Using this strategy, the impact of parenting and family
stability on the risk of psychopathic and nonpsychopathic offenders may be more
effectively studied.

Recidivism was measured using records of charges and convictions obtained from
two sources, including both federal and provincial records. Police records provide an
estimate of antisocial behavior and an indication of the cost of antisocial behavior to the
judicial system and to society at large. They are especially useful in the study of
adolescent antisocial behavior since there is no contact with the individual. Criminal
records are less intrusive then self-report measures of recidivism and avoid some
difficulties of self-report bias. Logistical details are somewhat less complicated when
police records are used. Confidentiality can be more tightly controlled. By using records,
the investigator avoids stigmatizing individuals by contacting them after they have ceased
offending. Police records are easier to access than individuals, who may be difficult to
contact for ethical as well as logistical reasons.

On the other hand, the information obtained by police records is based on the
agency's needs and not on those of the researcher's (e.g. Farrington, Ohlin, and Wilson,
1986). The researcher does not have control over the systematic maintenance of the
records. Rises and declines in recorded criminal behavior may reflect societal and
political trends, such as intolerance to behavior, changes in the criminal code, and
budgetary changes to law enforcement personnel. Further, individuals who are known to
police are likely to be more closely monitored, and so arrests may be more likely. In spite
of the potential for bias, research comparing the two methods indicates that there is good
agreement between self-reports and official reports in identifying offenders (Farrington, 1983). That is, although official reports tend to underestimate the actual number of offences, they do seem to be consistent with self-reports in terms of identifying which offenders are committing the crimes.

Investigation into the distribution of arrest rates across age groups suggests that crime increases as a function of age from early through late adolescence, and then drops (Hirschi and Gottfredson, 1983). The age-crime frequency distribution has been shown to be stable across time and cultures. The decrease in annual arrest and convictions after about age 16 holds across samples (Patterson and Yoerger, 1993). Patterson and Yoerger (1993) investigated whether the reduction represents a general reduction in antisocial behavior or better skill in avoiding arrest. Comparing self-report data with official records, Patterson and Yoerger found that their group of early-starters actually reported increases in activities in serious crimes during the very intervals that police arrests were decreasing. The late-starters, however, showed a decrease that was consistent with official reports. The authors suggest that early-starters over time become better able to evade detection. If the construct of psychopathy maps onto the early-starter paradigm, then these findings suggest that one way that official records contribute to the bias is by underestimating criminal involvement in psychopaths.

H. Summary and Conclusions

In the current study, psychopathy was examined as a risk factor amongst adolescent offenders. Overall, the present study suggests that a diagnosis of psychopathy in adolescence provides meaningful information about the long-term risk for violence. Together, the findings of the present study suggest that psychopathic adolescents are more severe and stable offenders than their nonpsychopathic counterparts, in both
adolescence and adulthood. These findings are consistent with previous research that has identified a subgroup of individuals whose antisocial behavior is continuous and progressive.

The construct of psychopathy, as conceptualized by the PCL-R and PCL:YV provided a strategy for assessment that can be conducted in adolescence. The PCL:YV meaningfully differentiated between subgroups of offenders at a time when it is difficult to distinguish between adolescent-limited and life-course persistent offenders. The results are consistent with studies that have investigated psychopathy and have found a relationship between psychopathy and violent and aggressive behavior in adolescents (Brandt et. al, 1997, Forth, 1996, Forth et al., 1990, Toupin et al., 1996). The present study extended the findings of earlier studies to show that psychopathy predicted a longitudinal pattern of violent behavior from adolescence into adulthood. Further, the results of the present study suggest that a diagnosis of psychopathy contributed to the prediction of violence, even amongst adolescents who appear for an assessment without a formal history of violence. The present study was the first to examine the relationship between adolescent psychopathy and response to supervision, in the form of escapes from custody and breach of probation orders when the subjects were released into the community. As with adults, adolescent psychopaths demonstrated a poor response to supervisory efforts, with a higher likelihood of committing a breach and escape than their nonpsychopathic counterparts.

In terms of clinical use, research in adolescent psychopathy is in early stages, and there is a need for more information regarding the psychometric properties of the PCL:YV, factor structure, reliability, and the generalizability of findings to a wider range
of adolescent offenders. Research is needed in order to better understand psychopathy in female offenders and offenders from other races. Further, if we are to develop early intervention strategies appropriate for adolescent psychopaths, we need to better understand the motivations and the cognitive, affective, familial, and biological factors that underlie or perhaps interact with the disorder.

Further longitudinal research is needed to establish the link between adolescent psychopathy and other outcomes that are associated with adult psychopathy. It is not known whether factors that appear to reduce the risk for violent and criminal behavior also reduce the risk for psychopaths in other areas of occupational, interpersonal, and social functioning. As Farrington, Ohlin, and Wilson (1986) have pointed out, researchers must recognize the continuity between crime and other social problem behaviors. Criminal behavior, as recorded in criminal record information, is only one part of a larger social problem. Absence of recidivism based on criminal record information does not provide an understanding of the course of an individual's functioning in other socially and psychologically meaningful domains, such as school, work, relationships, and family behavior. The personality traits at the core of the construct of psychopathy, such as callousness, superficiality, grandiosity, and lack of empathy are likely to impact many areas of functioning. For individuals whose records indicate a cessation in arrests, one cannot conclude that the criminal career has terminated, nor can one draw conclusions regarding other important aspects of their functioning. The behavior sampled by criminal record information gives us some idea of the cost of psychopathy to the judicial system, social services, and society, but likely only taps the "tip of the iceberg" in helping us to understand the complexity of the disorder.
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Adolescent Psychopathy


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<td>1</td>
<td>Glibness and Superficial Charm&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>2</td>
<td>Grandiose Sense of Self Worth&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>3</td>
<td>Need for Stimulation/ Proneness to boredom&lt;sup&gt;2&lt;/sup&gt;</td>
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<td>4</td>
<td>Pathological Lying&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>7</td>
<td>Shallow Affect&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>8</td>
<td>Callous/ Lack of Empathy&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>9</td>
<td>Parasitic Lifestyle&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>10</td>
<td>Poor Behavioral Controls&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>11</td>
<td>Promiscuous Sexual Behavior</td>
</tr>
<tr>
<td>12</td>
<td>Early Behavioral Problems&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>13</td>
<td>Lack of Realistic, Long-Term Goals&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>14</td>
<td>Impulsivity&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>15</td>
<td>Irresponsibility&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>16</td>
<td>Failure to Accept Responsibility for Own Actions&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>17</td>
<td>Many Short-Term Marital Relationships</td>
</tr>
<tr>
<td>18</td>
<td>Juvenile Delinquency&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>19</td>
<td>Revocation of Conditional Release&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>20</td>
<td>Criminal Versatility</td>
</tr>
</tbody>
</table>

<sup>1</sup> denotes Factor 1 Loading

<sup>2</sup> denotes Factor 2 Loading
<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>(S.D.)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age at Assessment</strong></td>
<td>16.05</td>
<td>(1.47)</td>
<td></td>
</tr>
<tr>
<td><strong>Age at Follow-Up</strong></td>
<td>25.98</td>
<td>(1.54)</td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td></td>
<td></td>
<td>80.9%</td>
</tr>
<tr>
<td>Native</td>
<td></td>
<td></td>
<td>17.2%</td>
</tr>
<tr>
<td>Black</td>
<td></td>
<td></td>
<td>0.6%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>1.3%</td>
</tr>
<tr>
<td><strong>IQ</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full scale</td>
<td>97.53</td>
<td>(11.71)</td>
<td></td>
</tr>
<tr>
<td>Verbal</td>
<td>93.94</td>
<td>(12.41)</td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>101.92</td>
<td>(12.14)</td>
<td></td>
</tr>
<tr>
<td><strong>P&gt;V Index</strong></td>
<td>7.13</td>
<td>(11.35)</td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>8.05</td>
<td>(1.12)</td>
<td></td>
</tr>
<tr>
<td><strong>Alcohol/Drug Use</strong></td>
<td></td>
<td></td>
<td>66.7%</td>
</tr>
<tr>
<td><strong>History of Self Injury</strong></td>
<td></td>
<td></td>
<td>33.1%</td>
</tr>
<tr>
<td><strong>Age Separated from</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological Mother</td>
<td>9.95</td>
<td>(5.94)</td>
<td></td>
</tr>
<tr>
<td><strong>Age Separated from</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological Father</td>
<td>6.23</td>
<td>(6.11)</td>
<td></td>
</tr>
<tr>
<td><strong>History of Moderate to Severe Abuse</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td>47.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual</td>
<td>12.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional</td>
<td>22.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adopted</td>
<td>21.9%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## DEMOGRAPHIC AND BACKGROUND CHARACTERISTICS BY PCL:YV GROUP

<table>
<thead>
<tr>
<th>PCL:YV Group</th>
<th>NP (n = 42)</th>
<th>M (n = 77)</th>
<th>P (n = 38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at Assessment</td>
<td>16.02 (1.43)</td>
<td>16.15 (1.36)</td>
<td>15.87 (1.72)</td>
</tr>
<tr>
<td>Age at Follow-Up</td>
<td>25.96 (1.46)</td>
<td>26.07 (1.42)</td>
<td>25.82 (1.77)</td>
</tr>
<tr>
<td>Ethnicity (percent):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White:</td>
<td>76.1%</td>
<td>83.1%</td>
<td>81.6%</td>
</tr>
<tr>
<td>Native:</td>
<td>21.5%</td>
<td>15.6%</td>
<td>15.8%</td>
</tr>
<tr>
<td>Black:</td>
<td>0.6%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Other:</td>
<td>1.8%</td>
<td>1.3%</td>
<td>2.6%</td>
</tr>
<tr>
<td>IQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FSIQ</td>
<td>95.24 (11.27)</td>
<td>98.00 (12.04)</td>
<td>99.11 (11.41)</td>
</tr>
<tr>
<td>VIQ</td>
<td>93.83 (12.32)</td>
<td>94.40 (12.58)</td>
<td>93.17 (12.45)</td>
</tr>
<tr>
<td>PIQ</td>
<td>97.48 (11.20)</td>
<td>102.51 (12.37)</td>
<td>105.46 (11.58) *</td>
</tr>
<tr>
<td>P&gt;V Index</td>
<td>2.46 (11.07)</td>
<td>7.48 (10.84)</td>
<td>11.57 (11.00) **</td>
</tr>
<tr>
<td>Education</td>
<td>8.06 (1.06)</td>
<td>8.02 (.97)</td>
<td>8.09 (1.46)</td>
</tr>
<tr>
<td>Alcohol/Drug Use</td>
<td>63.3%</td>
<td>63.5%</td>
<td>76.7%</td>
</tr>
<tr>
<td>History of Self Injury</td>
<td>21.4%</td>
<td>37.7%</td>
<td>36.8% *</td>
</tr>
<tr>
<td>Age Separated from BiologicalMother</td>
<td>10.12 (5.36)</td>
<td>10.93 (5.57)</td>
<td>7.80 (6.37) *</td>
</tr>
</tbody>
</table>
TABLE 3 (continued)

DEMOGRAPHIC AND BACKGROUND CHARACTERISTICS BY PCL:YV GROUP

(N = 157)

<table>
<thead>
<tr>
<th>PCL:YV Group</th>
<th>NP (n = 42)</th>
<th>M (n = 77)</th>
<th>P (n = 38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Separated from Biological Father</td>
<td>7.34 (5.67)</td>
<td>6.65 (6.04)</td>
<td>4.24 (5.38)</td>
</tr>
<tr>
<td>History of Moderate to Severe Abuse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td>42.9%</td>
<td>44.2%</td>
<td>52.6%</td>
</tr>
<tr>
<td>Sexual</td>
<td>11.9%</td>
<td>11.7%</td>
<td>13.2%</td>
</tr>
<tr>
<td>Emotional</td>
<td>26.2%</td>
<td>15.6%</td>
<td>28.9%</td>
</tr>
<tr>
<td>Adopted</td>
<td>19.0%</td>
<td>15.6%</td>
<td>34.2%</td>
</tr>
</tbody>
</table>

NP: Nonpsychopathic Group, M: Mixed Group, P: Psychopathic Group
Values enclosed in parentheses represent standard deviations.
*p<.05, **p<.01
### TABLE 4

PCL:YV SCORES, CONDUCT DISORDER SYMPTOMS, AND OFFENCE HISTORY
OF SAMPLE (N = 157)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean (S.D.)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL:YV Score</td>
<td>22.82 (7.04)</td>
<td></td>
</tr>
<tr>
<td>Factor 1</td>
<td>8.31 (3.83)</td>
<td></td>
</tr>
<tr>
<td>Factor 2</td>
<td>12.04 (4.08)</td>
<td></td>
</tr>
<tr>
<td>Conduct Disorder Symptoms</td>
<td>5.15 (2.18)</td>
<td></td>
</tr>
<tr>
<td>Conduct Disorder Diagnosis</td>
<td></td>
<td>93.6%</td>
</tr>
<tr>
<td>- Childhood Onset</td>
<td></td>
<td>46.5%</td>
</tr>
<tr>
<td>- Adolescent Onset</td>
<td></td>
<td>47.1%</td>
</tr>
<tr>
<td>Age at First Offence</td>
<td>14.95 (1.41)</td>
<td></td>
</tr>
<tr>
<td>Non-Violent Offence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Index</td>
<td></td>
<td>84.7%</td>
</tr>
<tr>
<td>- History (%)</td>
<td></td>
<td>65.6%</td>
</tr>
<tr>
<td>Mean (S.D.)</td>
<td>3.69 (4.54)</td>
<td></td>
</tr>
<tr>
<td>Violent Offence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Index</td>
<td></td>
<td>26.1%</td>
</tr>
<tr>
<td>- History (%)</td>
<td></td>
<td>15.9%</td>
</tr>
<tr>
<td>Mean (S.D.)</td>
<td>.52 (.04)</td>
<td></td>
</tr>
<tr>
<td>Sex Offence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Index</td>
<td></td>
<td>5.7%</td>
</tr>
<tr>
<td>- History (%)</td>
<td></td>
<td>2.5%</td>
</tr>
<tr>
<td>Mean (S.D.)</td>
<td>.21 (.02)</td>
<td></td>
</tr>
</tbody>
</table>
## TABLE 5

### CONDUCT DISORDER SYMPTOMS AND OFFENCE HISTORY BY PCL:YV GROUP

(N = 157)

<table>
<thead>
<tr>
<th>PCL:YV Group</th>
<th>NP (n = 42)</th>
<th>M (n = 77)</th>
<th>P (n = 38)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conduct Disorder</strong> Symptoms</td>
<td>4.14 (1.79)</td>
<td>4.81 (1.92)</td>
<td>7.03 (1.90) **</td>
</tr>
<tr>
<td><strong>Conduct Disorder</strong> Diagnosis</td>
<td>85.7%</td>
<td>95.8%</td>
<td>100% *</td>
</tr>
<tr>
<td>• Childhood Onset</td>
<td>21.4%</td>
<td>50.6%</td>
<td>65.8% **</td>
</tr>
<tr>
<td>• Adolescent Onset</td>
<td>64.3%</td>
<td>44.2%</td>
<td>34.2% *</td>
</tr>
<tr>
<td>Age at First Offence</td>
<td>15.2 (1.46)</td>
<td>14.96 (1.38)</td>
<td>14.67 (1.42)</td>
</tr>
<tr>
<td><strong>Nonviolent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Index</td>
<td>81.0%</td>
<td>87.0%</td>
<td>84.2%</td>
</tr>
<tr>
<td>• History (%)</td>
<td>59.5%</td>
<td>70.1%</td>
<td>63.2%</td>
</tr>
<tr>
<td>Mean (S.D.)</td>
<td>2.57 (3.26)</td>
<td>3.54 (4.19)</td>
<td>4.26 (5.38)</td>
</tr>
<tr>
<td><strong>Violent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Index</td>
<td>19.0%</td>
<td>27.3%</td>
<td>31.6%</td>
</tr>
<tr>
<td>• History (%)</td>
<td>7.1%</td>
<td>15.6%</td>
<td>26.3% *</td>
</tr>
<tr>
<td>Mean (S.D.)</td>
<td>.07 (.26)</td>
<td>.19 (.49)</td>
<td>.37 (.71) *</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Index</td>
<td>9.5%</td>
<td>3.9%</td>
<td>5.3%</td>
</tr>
<tr>
<td>• History (%)</td>
<td>0.0%</td>
<td>2.6%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Mean (S.D.)</td>
<td>0.0 (0.0)</td>
<td>0.03 (.16)</td>
<td>0.08 (.36)</td>
</tr>
</tbody>
</table>

*NP: Nonpsychopathic Group, M: Mixed Group, P: Psychopathic Group
*Values enclosed in parentheses represent standard deviations.
* *p<.05, **p<.01
<table>
<thead>
<tr>
<th></th>
<th>PCL: YV</th>
<th>PCL: YV Factor 1</th>
<th>PCL: YV Factor 2</th>
<th>Conduct Disorder Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL: YV</td>
<td>1.000</td>
<td>.89**</td>
<td>.85**</td>
<td>.49**</td>
</tr>
<tr>
<td>PCL: YV Factor 1</td>
<td>.89**</td>
<td>1.000</td>
<td>.58**</td>
<td>.42**</td>
</tr>
<tr>
<td>PCL: YV Factor 2</td>
<td>.85**</td>
<td>.58**</td>
<td>1.000</td>
<td>.39**</td>
</tr>
<tr>
<td>Conduct Disorder Symptoms</td>
<td>.49**</td>
<td>.42**</td>
<td>.39**</td>
<td>1.000</td>
</tr>
<tr>
<td>Offences Per Year</td>
<td>.05</td>
<td>.002</td>
<td>.10</td>
<td>.07</td>
</tr>
<tr>
<td>Non-violent Offences Per Year</td>
<td>.004</td>
<td>-.04</td>
<td>.07</td>
<td>.04</td>
</tr>
<tr>
<td>Violent Offences Per Year</td>
<td>.23**</td>
<td>.19**</td>
<td>.20**</td>
<td>.17*</td>
</tr>
<tr>
<td>Sex Offences Per Year</td>
<td>.06</td>
<td>.04</td>
<td>.05</td>
<td>-.003</td>
</tr>
</tbody>
</table>

Note: Recidivism defined by mean number of offences per year in the community during 10-year follow-up period.

*p<.05, **p<.01
### TABLE 7

**MEAN NUMBER OF OFFENCES COMMITTED PER YEAR FREE BY PCL:YV GROUP DURING TEN-YEAR FOLLOW-UP**

<table>
<thead>
<tr>
<th>Type of Offence</th>
<th>Sample (N=157)</th>
<th>NP (n = 42)</th>
<th>M (n = 77)</th>
<th>P (n = 38)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Any New Offences</strong></td>
<td>4.20 (5.08)</td>
<td>3.80 (5.65)</td>
<td>4.20 (5.31)</td>
<td>4.62 (3.87)</td>
</tr>
<tr>
<td><strong>Nonviolent Offences</strong></td>
<td>3.56 (4.65)</td>
<td>3.58 (5.55)</td>
<td>3.46 (4.74)</td>
<td>3.76 (3.23)</td>
</tr>
<tr>
<td><strong>Violent Offences</strong></td>
<td>.48 (.77)</td>
<td>.21 (.47)</td>
<td>.47 (.78)</td>
<td>.79 ** (.99)</td>
</tr>
<tr>
<td><strong>Sexual Offences</strong></td>
<td>.12 (.90)</td>
<td>.02 (.07)</td>
<td>.21 (1.27)</td>
<td>.06 (.16)</td>
</tr>
</tbody>
</table>

**Note:** Recidivism defined by mean number of Offences per year in the community during 10-year follow-up period.
- P: Psychopathic Group; M: Mixed Group; NP: Nonpsychopathic Group
- Values enclosed in parentheses represent standard deviations.
- *p < .05  ** p < .01
TABLE 8

MEAN NUMBER OF NONVIOLENT AND VIOLENT OFFENCES COMMITTED PER YEAR FREE BY AGE PERIOD

<table>
<thead>
<tr>
<th>PCL:YV Group</th>
<th>Sample (N=157)</th>
<th>NP (n = 42)</th>
<th>M (n = 77)</th>
<th>P (n = 38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonviolent offences</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Adolescence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (S.D.)</td>
<td>1.85 (2.58)</td>
<td>1.57 (2.17)</td>
<td>1.87 (2.80)</td>
<td>2.13 (2.56)</td>
</tr>
<tr>
<td>Percentage</td>
<td>95.5%</td>
<td>64.3%</td>
<td>66.2%</td>
<td>76.3%</td>
</tr>
<tr>
<td>Late Adolescence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (S.D.)</td>
<td>4.46 (4.56)</td>
<td>3.46 (4.22)</td>
<td>4.16 (3.87)</td>
<td>6.14 (5.76)</td>
</tr>
<tr>
<td>Percentage</td>
<td>89.8%</td>
<td>81.0%</td>
<td>93.5%</td>
<td>92.1%</td>
</tr>
<tr>
<td>Early Adulthood</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (S.D.)</td>
<td>4.52 (6.09)</td>
<td>4.82 (6.25)</td>
<td>4.65 (6.46)</td>
<td>4.02 (5.33)</td>
</tr>
<tr>
<td>Percentage</td>
<td>76.4%</td>
<td>76.3%</td>
<td>74.0%</td>
<td>81.0%</td>
</tr>
<tr>
<td>Violent offences</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Adolescence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (S.D.)</td>
<td>.13 (.29)</td>
<td>.05 (.12)</td>
<td>.10 (.27)</td>
<td>.27 (.41)</td>
</tr>
<tr>
<td>Percentage</td>
<td>21.7%</td>
<td>14.3%</td>
<td>18.2%</td>
<td>36.8%</td>
</tr>
<tr>
<td>Late Adolescence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (S.D.)</td>
<td>.42 (.69)</td>
<td>.10 (.25)</td>
<td>.42 (.65)</td>
<td>.77 (.91)</td>
</tr>
<tr>
<td>Percentage</td>
<td>46.5%</td>
<td>16.7%</td>
<td>53.2%</td>
<td>65.8%</td>
</tr>
<tr>
<td>Early Adulthood</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (S.D.)</td>
<td>.56 (1.10)</td>
<td>.25 (1.46)</td>
<td>.54 (1.11)</td>
<td>.96 (1.45)</td>
</tr>
<tr>
<td>Percentage</td>
<td>38.2%</td>
<td>26.8%</td>
<td>36.4%</td>
<td>52.6%</td>
</tr>
</tbody>
</table>

- Recidivism defined by mean number of offences per year in the community
- P: Psychopathic Group; M: Mixed Group; NP: Nonpsychopathic Group
- Early Adolescence: Age 13-15; Late Adolescence: Age 16-18; Early Adulthood: Age 19-21
- *p < .05. ** p < .01
# TABLE 9

## BACKGROUND CHARACTERISTICS AND VIOLENT FAILURE (N = 157)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Violent Failure (n=107)</th>
<th>No Violent Failure (n=50)</th>
<th>Statistic (t or $\chi^2$)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL:YV Score</td>
<td>24.27 (6.58)</td>
<td>19.72 (7.06)</td>
<td>3.9</td>
<td>.000</td>
</tr>
<tr>
<td>Factor 1</td>
<td>8.83 (3.70)</td>
<td>7.19 (3.89)</td>
<td>2.55</td>
<td>.012</td>
</tr>
<tr>
<td>Factor 2</td>
<td>13.03 (2.77)</td>
<td>10.77 (3.59)</td>
<td>3.94</td>
<td>.001</td>
</tr>
<tr>
<td>Conduct Disorder Symptoms</td>
<td>5.46 (2.12)</td>
<td>4.54 (2.13)</td>
<td>-2.52</td>
<td>.013</td>
</tr>
<tr>
<td>Age at Assessment (Years)</td>
<td>15.96 (1.51)</td>
<td>16.21 (1.36)</td>
<td>.96</td>
<td>.34</td>
</tr>
<tr>
<td>Age at First Offence</td>
<td>14.81 (1.41)</td>
<td>15.26 (1.40)</td>
<td>1.89</td>
<td>.06</td>
</tr>
<tr>
<td>Pre-Assessment</td>
<td>.25 (.58)</td>
<td>.10 (.30)</td>
<td>2.15</td>
<td>.03</td>
</tr>
<tr>
<td>Violent Offences</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violent Index Offence</td>
<td>28%</td>
<td>22%</td>
<td>.06</td>
<td>.42</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White: 79.4%</td>
<td>White: 84.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native: 18.7%</td>
<td>Native: 14.0%</td>
<td></td>
<td>2.26</td>
<td>.81</td>
</tr>
<tr>
<td>Black: 0.0%</td>
<td>Black: 2.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other: 1.8%</td>
<td>Other: .0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IQ Full scale</td>
<td>98.31 (13.97)</td>
<td>96.17 (13.57)</td>
<td>1.07</td>
<td>.29</td>
</tr>
<tr>
<td>Verbal</td>
<td>94.26 (14.22)</td>
<td>93.68 (15.75)</td>
<td>-.19</td>
<td>.85</td>
</tr>
<tr>
<td>Performance</td>
<td>104.15 (13.54)</td>
<td>97.13 (15.09)</td>
<td>2.38</td>
<td>.019</td>
</tr>
<tr>
<td></td>
<td>Violent Failure (n=107)</td>
<td>No Violent Failure (n=50)</td>
<td>Statistic (t or χ²)</td>
<td>p</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------</td>
<td>--------------------------</td>
<td>----------------------</td>
<td>-----</td>
</tr>
<tr>
<td>P &gt; V Index</td>
<td>8.83 (10.96)</td>
<td>3.47 (11.42)</td>
<td>2.82</td>
<td>.005</td>
</tr>
<tr>
<td>Education</td>
<td>8.04 (1.20)</td>
<td>8.05 (.95)</td>
<td>.02</td>
<td>.99</td>
</tr>
<tr>
<td>Alcohol/Drug Use</td>
<td>69.7%</td>
<td>58.8%</td>
<td>1.3</td>
<td>.25</td>
</tr>
<tr>
<td>History of Self Injury</td>
<td>40.2%</td>
<td>18.0%</td>
<td>7.57</td>
<td>.006</td>
</tr>
<tr>
<td>Age Separated from Biological Mother</td>
<td>9.52(5.98)</td>
<td>10.90(5.38)</td>
<td>1.45</td>
<td>.15</td>
</tr>
<tr>
<td>Age Separated from Biological Father</td>
<td>4.24 (5.38)</td>
<td>7.34 (5.67)</td>
<td>.643</td>
<td>.52</td>
</tr>
<tr>
<td>Adopted</td>
<td>22.1</td>
<td>21.3%</td>
<td>.15</td>
<td>.59</td>
</tr>
<tr>
<td>History of Physical Abuse</td>
<td>52.6%</td>
<td>46.0%</td>
<td>.057</td>
<td>.48</td>
</tr>
<tr>
<td>History of Sexual Abuse</td>
<td>13.2%</td>
<td>12.4%</td>
<td>.015</td>
<td>.90</td>
</tr>
<tr>
<td>History of Emotional Abuse</td>
<td>28.9%</td>
<td>20.4%</td>
<td>.089</td>
<td>.27</td>
</tr>
</tbody>
</table>

Values enclosed in parentheses represent standard deviations.
TABLE 10

LOGISTIC REGRESSION ANALYSIS OF VIOLENT FAILURE AS A FUNCTION OF PCL:YV AND BACKGROUND VARIABLES (N=157)

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>sig</th>
<th>R</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In the Equation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCL: YV</td>
<td>.09</td>
<td>.028</td>
<td>9.579</td>
<td>1</td>
<td>.002</td>
<td>.196</td>
<td>1.090</td>
</tr>
<tr>
<td>P&gt;V Index</td>
<td>.03</td>
<td>.018</td>
<td>2.933</td>
<td>1</td>
<td>.087</td>
<td>.069</td>
<td>1.031</td>
</tr>
<tr>
<td>Self Injury</td>
<td>1.03</td>
<td>.440</td>
<td>5.534</td>
<td>1</td>
<td>.019</td>
<td>.134</td>
<td>2.797</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.62</td>
<td>.628</td>
<td>6.656</td>
<td>1</td>
<td>.009</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Model if Term Removed**

<table>
<thead>
<tr>
<th>Variables</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p  =</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL: YV</td>
<td>10.432</td>
<td>1</td>
<td>.001</td>
</tr>
<tr>
<td>P &gt; V Index</td>
<td>3.113</td>
<td>1</td>
<td>.078</td>
</tr>
<tr>
<td>Self-Injury</td>
<td>6.133</td>
<td>1</td>
<td>.013</td>
</tr>
</tbody>
</table>

**Variables not in the Equation**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Score</th>
<th>df</th>
<th>sig</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual Chi Square</td>
<td>3.958</td>
<td>4</td>
<td>.412</td>
<td>.000</td>
</tr>
<tr>
<td>History of Violence</td>
<td>.542</td>
<td>1</td>
<td>.593</td>
<td>.000</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>1.034</td>
<td>1</td>
<td>.309</td>
<td>.000</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>.001</td>
<td>1</td>
<td>.972</td>
<td>.000</td>
</tr>
<tr>
<td>Emotional Abuse</td>
<td>.040</td>
<td>1</td>
<td>.840</td>
<td>.000</td>
</tr>
<tr>
<td>Alcohol/Drug Use</td>
<td>.030</td>
<td>1</td>
<td>.861</td>
<td>.000</td>
</tr>
<tr>
<td>Age First Offence</td>
<td>2.024</td>
<td>1</td>
<td>.154</td>
<td>.000</td>
</tr>
</tbody>
</table>


TABLE 10 (continued)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Score</th>
<th>df</th>
<th>sig</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSIQ</td>
<td>.302</td>
<td>1</td>
<td>.582</td>
<td>.000</td>
</tr>
<tr>
<td>PIQ</td>
<td>1.12</td>
<td>1</td>
<td>.290</td>
<td>.000</td>
</tr>
<tr>
<td>VIQ</td>
<td>1.42</td>
<td>1</td>
<td>.233</td>
<td>.000</td>
</tr>
<tr>
<td>Education</td>
<td>.000</td>
<td>1</td>
<td>1.00</td>
<td>.000</td>
</tr>
<tr>
<td>Age Separated From Biological Father</td>
<td>.000</td>
<td>1</td>
<td>.987</td>
<td>.000</td>
</tr>
<tr>
<td>Age Separated From Biological Mother</td>
<td>.729</td>
<td>1</td>
<td>.393</td>
<td>.000</td>
</tr>
<tr>
<td>Conduct Disorder</td>
<td>.738</td>
<td>1</td>
<td>.274</td>
<td>.000</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>.019</td>
<td>1</td>
<td>.890</td>
<td>.000</td>
</tr>
<tr>
<td>Adoption</td>
<td>.151</td>
<td>1</td>
<td>.697</td>
<td>.000</td>
</tr>
</tbody>
</table>
### TABLE 11

**BACKGROUND CHARACTERISTICS OF VIOLENT AND NONVIOLENT PSYCHOPATHS**

<table>
<thead>
<tr>
<th>Conduct Disorder Symptoms</th>
<th>Psychopaths: With Violent Failure (n=32)</th>
<th>Psychopaths: No Violent Failure (n=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at Assessment (Years)</td>
<td>7.03 (1.94)</td>
<td>7.00 (1.79)</td>
</tr>
<tr>
<td>Age at First Offence</td>
<td>15.65 (1.78)</td>
<td>17.07 (.63)</td>
</tr>
<tr>
<td>Pre-Assessment Violent Offences</td>
<td>.41 (.76)</td>
<td>.17 (.41)</td>
</tr>
<tr>
<td>Violent Index Offence</td>
<td>28%</td>
<td>50%</td>
</tr>
</tbody>
</table>

**Ethnicity**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Psychopaths: With Violent Failure (n=32)</th>
<th>Psychopaths: No Violent Failure (n=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White:</td>
<td>76.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Native:</td>
<td>20.0%</td>
<td>0%</td>
</tr>
<tr>
<td>Black:</td>
<td>0.0%</td>
<td>.0%</td>
</tr>
<tr>
<td>Other:</td>
<td>3.3%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

**IQ**

<table>
<thead>
<tr>
<th>IQ Full scale</th>
<th>Psychopaths: With Violent Failure (n=32)</th>
<th>Psychopaths: No Violent Failure (n=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>97.90 (11.36)</td>
<td>105.54 (10.15)</td>
</tr>
<tr>
<td>Verbal</td>
<td>91.16 (11.88)</td>
<td>103.89 (10.46)</td>
</tr>
<tr>
<td>Performance</td>
<td>105.36 (11.77)</td>
<td>105.99 (11.54)</td>
</tr>
</tbody>
</table>
TABLE 11 (continued)

<table>
<thead>
<tr>
<th></th>
<th>Psychopaths: With Violent Failure (n=32)</th>
<th>Psychopaths: No Violent Failure (n=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P &gt; V Index</td>
<td>13.39 (10.17)</td>
<td>1.86 (10.93)</td>
</tr>
<tr>
<td>Education</td>
<td>8.01 (1.52)</td>
<td>8.50 (1.05)</td>
</tr>
<tr>
<td>Alcohol/Drug Use</td>
<td>69.7%</td>
<td>58.8%</td>
</tr>
<tr>
<td>History of Self Injury</td>
<td>37.5%</td>
<td>0%</td>
</tr>
<tr>
<td>Age Separated from</td>
<td>7.62 (6.35)</td>
<td>8.75 (6.96)</td>
</tr>
<tr>
<td>Biological Mother</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age Separated from</td>
<td>4.00 (5.36)</td>
<td>5.50 (5.79)</td>
</tr>
<tr>
<td>Biological Father</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adopted</td>
<td>28.1%</td>
<td>66.7%</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>43.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>9.4%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Emotional Abuse</td>
<td>28.1%</td>
<td>33.3%</td>
</tr>
</tbody>
</table>

* Values enclosed in parenthesis represent standard deviations.
* *p<.05, **p<.01
Figure 1

Recidivism Rates for Sample (N=157)

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>97</td>
</tr>
<tr>
<td>Nonviolent</td>
<td>96</td>
</tr>
<tr>
<td>Sexual</td>
<td>15</td>
</tr>
<tr>
<td>Violent</td>
<td>68</td>
</tr>
</tbody>
</table>
Figure 2

PCL:YV Group by Offence Failure (N=157)

** Violent: P>NP (p=.01); M>NP (p=.03)

NP: Nonpsychopathic Group, M: Mixed Group, P: Psychopathic Group
Figure 3

PCL:YV Group by Breach/Escape (N=157)

NP (n=42)  M (n=77)  P (n=38)

Type of Violation

- Formal Breach *
- Escape Attempt **

PCL:YV Group

NP: Nonpsychopathic Group; M: Mixed Group; P: Psychopathic Group

*Breach: P>NP (p<.05), **Escape P>NP (p<.01); P>M (p<.01); M>NP (p<.05)
Figure 4

Age Related Changes in Nonviolent Offending

- NP: Nonpsychopathic Group, M: Mixed Group, P: Psychopathic Group
Figure 5

Age Related Changes in Violent Offending

- NP: Nonpsychopathic Group
- M: Mixed Group
- P: Psychopathic Group

* NP: Nonpsychopathic Group, M: Mixed Group, P: Psychopathic Group
Figure 6

Survival to First Violent Offence (N=157)

PCL:YV Group
- Psychopaths
- Mixed
- Nonpsychopaths

Cumulative Survival

Months to First Violent Offence
**Figure 7**

PCL:YV by Violent Offence History

Survival to Violent Offence (N=80)

- ▲ Psychopath
  - Violent History
- ▼ Psychopath
  - No Violent History
- ■ Nonpsychopath
  - Violent History
- ○ Nonpsychopath
  - No Violent History
Figure 8

PCL:YV Group by Breach of Probation

Survival to First Breach (N = 157)

Cumulative Survival

Months to First Breach
Figure 9

PCL:YV Group by Survival to First Escape or Attempted Escape (N=157)

Cumulative Survival

Months to First Attempted Escape