

**AGE OF ONSET OF PSYCHOPATHIC TRAITS
IN ADOLESCENT OFFENDERS**

by

Jessica R. Klaver

B.S., University of Wisconsin – Madison, 2000

M.A., Simon Fraser University, 2003

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Approval

Name: Jessica R. Klaver
Degree: Doctor of Philosophy
Title of Dissertation: Age of Onset of Psychopathic Traits in Adolescent Offenders

Examining Committee:

Chair: Cathy McFarland
Professor, Department of Psychology

Stephen D. Hart, Ph.D.
Senior Supervisor
Professor, Department of Psychology

Marlene M. Moretti, Ph.D.
Supervisor
Professor, Department of Psychology

Kevin S. Douglas, Ph.D.
Supervisor
Assistant Professor, Department of Psychology

Patrick Bartel, Ph.D.
Internal Examiner
Adjunct Professor, Department of Psychology

Randall T. Salekin, Ph.D.
External Examiner
Associate Professor, Department of Psychology
University of Alabama

Date Approved: October 16, 2006

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Abstract

Psychopathy is a personality disorder characterized by a constellation of maladaptive interpersonal, affective, and behavioral traits. Psychopathic traits have strong associations with several negative outcomes in youth, including violence and criminality. However, there are numerous developmental and ethical concerns regarding the direct extension of the adult psychopathy construct to youth. Further, little is known about the etiology and early course of psychopathy. The goal of this study was to investigate the onset of the interpersonal, affective, and behavioral traits of psychopathy in a sample of 115 male young offenders. Youth were assessed to determine the presence, severity, and age of onset of psychopathic traits. Results indicated that age of onset ratings were made reliably for most traits. Survival analysis was employed to compute median ages of onset for all psychopathic traits, which ranged from age 8 to 14. Traits reflecting deficient affective experience, such as lacking remorse and empathy, had earlier ages of onset than did other symptoms. The interpersonal and behavioral traits of impression management and lacking goals had the latest ages of onset. However, it is unclear whether these traits did not crystallize until later ages or whether their earlier manifestations are unable to be detected due to a developmentally uninformed measurement instrument. High risk developmental periods for the onset of psychopathic traits were also identified.

Dedication

I would like to dedicate this dissertation to my parents and sisters who have supported my every endeavor with unconditional trust and enthusiasm. Thank you for instilling in me the independence and perseverance that have carried me through both personally and academically.

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Age of Onset of Psychopathic Traits in Adolescent Offenders

Psychopathy is characterized by a constellation of maladaptive personality traits (Cleckley, 1976; Hare, 2003). Interpersonally, psychopathic individuals are glib and superficially charming, grandiose, and deceitful. Affectively, they have shallow and labile emotions and lack a capacity for empathy or remorse. Behaviorally, they engage in impulsive and irresponsible actions. The core interpersonal and affective features of psychopathy, as reflected in the Hare Psychopathy Checklist – Revised (PCL-R; Hare, 1991, 2003) differ from the diagnostic criteria for antisocial personality disorder (APD) contained in the fourth edition of *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association [APA], 1994), which place a primary emphasis on behavioral violations of social norms. Whereas approximately 80% of incarcerated males meet the criteria for APD, only 15 to 25% are psychopathic (Hart & Hare, 1997). Psychopathic offenders pose great harm and costs to society, as they are criminally versatile and known to commit a disproportionate amount of violent crime compared to non-psychopathic offenders (Hare, 1996; Hare, McPherson, & Forth, 1988; Hart & Hare, 1997; Kosson, Smith, & Newman, 1990; Serin, 1991).

Adult Psychopathy

The PCL-R is the “gold standard” for the assessment of psychopathy in adulthood (Hare, 1991, 2003). The PCL-R uses file and interview information to rate adults on 20 items reflecting psychopathy. Items are rated on a three-point scale (0 = *definitely*

present; 1 = *maybe/possibly present*; 2 = *definitely present*) and can be summed to yield a total score ranging from 0 to 40, with a score of 30 typically designated as a cutoff for a diagnosis of psychopathy. The PCL-R is widely used in adult criminal and forensic settings and has demonstrated high levels of reliability and validity in these populations (Fulero, 1995; Hare, 2003; Stone, 1995).

Early factor analytic studies of the PCL-R reported a two-factor structure, with the first factor referring to “the selfish, callous, and remorseless use of others” and the second factor indexing “a chronically unstable and antisocial lifestyle” (Harpur, Hakstian, & Hare, 1988). Recent investigations using latent-trait techniques have suggested that the construct of psychopathy, as measured by the PCL-R, may be best conceptualized by a three-factor hierarchical model, including Arrogant and Deceitful Interpersonal Style, Deficient Affective Experience, and Impulsive and Irresponsible Behavioral Style (Cooke & Michie, 2001). Additionally, Hare (2003) has proposed a four-factor model, which mirrors the three-factor model but also includes a fourth factor assessing Antisocial Behavior.

Psychopathy is clinically useful in adult criminal and forensic settings because psychopathic traits tend to be related to several legally-relevant outcomes. Most importantly, psychopathy is strongly associated with general and violent criminal behavior (for reviews, see Douglas, Vincent, & Edens, 2006; Hemphill, Hare, & Wong, 1998; Salekin, Rogers, & Sewell, 1996). Not surprisingly then, the construct of adult psychopathy has been increasingly influential in public policy and legal decision-making (Edens & Petrila, 2006; Lyon & Ogloff, 2000; Otto & Heilbrun, 2002; Zinger & Forth, 1998).

Assessment of Psychopathic Traits in Youth

In recent years, there has been much interest in the study of psychopathic traits¹ in child and adolescent populations (for a review, see Kotler & McMahon, 2005). There are several important reasons for this line of investigation. First, there has been pressing social concern regarding serious criminal behavior in youth (Office of Juvenile Justice and Delinquency Prevention, 1999). Given the strong relationship between psychopathy and violent offending in adult offenders, the construct may be useful in identifying youth at high risk for violence as well as informing legal decision-making and risk management strategies in these cases (Vincent, 2006; Vincent & Hart, 2002; Vitacco & Vincent, 2006). Second, because most delinquent youth do not become antisocial adults (White, Moffitt, Earls, Robins, & Silva, 1990), the presence of psychopathic traits may serve to identify a subgroup of conduct disordered youth at highest risk for serious future behavior problems (Frick, Bodin, & Barry, 2000; Lynam, 1996, 1997, 1998; Salekin, 2006). Finally, increasing our understanding of the etiology and development of psychopathy by studying these traits in younger samples will inform treatment and prevention strategies designed to target key mechanisms in the development of the disorder.

One instrument developed to measure psychopathic traits in youth, the Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson, & Hare, 2003), is a downward extension of the PCL-R designed for youth aged 12 to 18. Several items and item description modifications have been introduced into the PCL:YV in order to better

¹Given the lack of evidence of stability of psychopathic traits in childhood and adolescence, it could be argued that the term “trait” is inappropriate because it implies stability. Although other terms, such as “features” or “characteristics,” could be used instead, the term “trait” is used in this paper in order to remain consistent with the literature.

account for adolescent life experiences by focusing more on peer, family, and school adjustment (Forth, 2006). For example, given the limited relationship experiences of adolescents, the item *Many Short-Term Marital Relationships* of the PCL-R was changed to capture a more general pattern of *Unstable Interpersonal Relationships* in the PCL:YV.

The factor structure of the PCL:YV is a matter of continued debate. Early studies suggested a two-factor model, similar to that first proposed for the PCL-R (Forth, 1995; Forth & Burke, 1998). Other investigations have concluded that a three-factor model fits best (Kosson, Cytorski, Steuerwald, Neumann, & Walker-Matthews, 2002) and, more recently, researchers have recommended that either of the three- or four-factor models may be used (Jones, Cauffman, Miller, & Mulvey, 2006; Salekin, Brannen, Zalot, Leistico, Neumann, 2006). Additionally, the PCL:YV manual indicates that the instrument may be scored using the two-, three-, or four-factor models (Forth et al., 2003). The PCL:YV has demonstrated adequate psychometric properties, including acceptable levels of interrater reliability and internal consistency, in youth samples (Campbell, Pulos, & Hogan, 2005; Forth, 2006; Forth & Burke, 1998; Forth & Mailloux, 2000; Vincent & Hart, 2002).

Correlates of Psychopathic Traits in Youth

Empirical evidence suggests that psychopathic traits in youth may function similarly to adult psychopathy in terms of their relationships with important criterion variables. Indeed, Lynam and Gudonis (2005) concluded that psychopathic traits in youth tend to manifest and operate similarly to adult psychopathy. Importantly, psychopathic traits have demonstrated strong associations with several negative outcomes in youth,

including violence and criminal recidivism (for reviews, see Edens, Campbell, & Weir, in press; Edens, Skeem, Cruise, & Caufmann, 2001).

Early studies using the PCL-R in youth samples found associations between psychopathic traits and conduct disorder symptoms, past violent and non-violent offending, aggressive institutional infractions, externalizing behaviors, as well as criminal versatility and severity (Brandt, Kennedy, Patrick, & Curtin, 1997; Edens, Poythress, & Lilienfeld, 1999; Forth, 1995; Forth & Burke, 1998; Forth, Hart, & Hare, 1990; Forth & Tobin, 1995; Murdock Hicks, Rogers, & Cashel, 2000; Myers, Burket, & Harris, 1995; Ridenour, Marchant, & Dean, 2001; Rogers, Johansen, Chang, & Salekin, 1997; Smith, Gacono, & Kaufman, 1997; Toupin, Mercier, Déry, Côté, & Hodgins, 1995). It should be noted that the majority of these studies used postdictive or concurrent designs, which are subject to criterion contamination in the examination of psychopathic traits, behavioral dysfunction, and criminality.

In several studies, PCL-R scores in youth were found to predict future delinquency, aggression, violent and general recidivism, and more imminent violent offending (Forth et al., 1990; Langstrom & Grann, 2000; Ridenour et al., 2001; Toupin et al., 1995). Early studies also found that PCL-R scores in youth were related to drug and alcohol use (Forth, 1995; Mallioux, Forth, & Kroner, 1997; Myers et al., 1995; Toupin et al., 1995), impulsivity (Stanford, Ebner, Patton, & Williams, 1994), and narcissism (Myers et al., 1995; Smith et al., 1997) as well as low academic achievement and learning disability (Ridenour et al., 2001).

More recent investigations using the PCL:YV have found that psychopathic traits in youth are associated with delinquency, aggression, externalizing behavior, violent and

non-violent offending, institutional infractions, and criminal versatility (Campbell, Porter, & Santor, 2004; Corrado, Vincent, Hart, & Cohen, 2004; Dolan & Rennie, 2006; Kosson et al., 2002; Murrie, Cornell, Kaplan, McConville, & Levy-Elkon, 2004; Spain, Douglas, Poythress, & Epstein, 2004; Vincent, Vitacco, Grisso, & Corrado, 2003). High PCL:YV scores have predictive utility in terms of institutional disciplinary action and the likelihood and imminence of future violent and non-violent offending (Catchpole & Gretton, 2003; Gretton, Hare, & Catchpole, 2004; Dolan & Rennie, 2006; Gretton, McBride, Hare, O'Shaughnessy, & Kumka, 2001; Murrie et al., 2004; O'Neill, Lidz, & Heilbrun, 2003a; Salekin, Neumann, Leistico, DiCicco, & Duros, 2004; Skeem & Caufmann, 2003; Stafford & Cornell, 2003; Vincent et al., 2003). PCL:YV scores have also demonstrated incremental validity in predicting delinquency and violence beyond disruptive behavior disorders (Salekin et al., 2004), previous violence (Murrie et al., 2004), and criminal history and conduct disorder diagnoses (Gretton et al., 2004).

Recent meta-analyses have found strong relationships between of Psychopathy Checklist measures and general ($r = .24$) and criminal ($r = .25$) recidivism (Edens et al., in press) as well as various types of institutional misconduct, with r 's ranging from .24 to .28 (Edens & Campbell, in press). However, it should be noted that, despite the strong relationships that have been found between psychopathic traits and criminal recidivism in youth, some studies have found little to no relationship between these variables (e.g., Edens & Cahill, in press; Marczyk, Heilbrun, Lander, & DeMatteo, 2005).

Other recent studies have found positive relationships between PCL:YV scores and escapes from custody and violations of supervision conditions (Gretton et al., 2001), impulsivity (Dolan & Rennie, 2006), weapon use and instrumental violence (Kosson et

al., 2002; Murrie et al., 2004), a history of child maltreatment, foster care placement, academic problems, and school expulsions (Campbell et al., 2004; O'Neill et al., 2003), poor response in substance abuse treatment (O'Neill, Lidz, & Heilbrun, 2003b), and psychopathology such as anxiety and adjustment disorders (Salekin et al., 2004).

Psychopathic traits have been negatively related to closeness to family and attachment to parents (Kosson et al., 2002), empathy (Dolan & Rennie, 2006), and various measures of psychosocial maturity (Skeem & Caufmann, 2003).

Developmental and Ethical Considerations

While there is a growing body of evidence indicating that psychopathic traits may have utility in youthful populations, there have been concerns that the construct of psychopathy should be applied with great caution to children and adolescents. A central motivation for this apprehension is the worry that researchers have forged ahead in investigating the utility of psychopathic traits in youth before comprehensively evaluating the viability of the construct in younger individuals. Important developmental and ethical concerns include the stability of psychopathic traits across development, the ethical implications of labeling young offenders as psychopathic, and the validity or appropriateness of directly extending adult conceptualizations of psychopathy to youth.

First, there is little evidence regarding the stability of psychopathy. It is widely assumed that adult psychopathy reflects a stable character disposition (Monahan & Steadman, 1994; Quinsey, Harris, Rice, & Cormier, 1998); however, the adult literature offers limited evidence for the stability of the disorder (Harpur & Hare, 1994; Rutherford, Cacciola, Alterman, McKay, & Cook, 1999; Schroeder, Schroeder, & Hare, 1983). In youth, the stability and malleability of psychopathic traits are almost entirely unknown,

although there is some evidence for high test-retest reliability (Skeem & Caufmann, 2003), stability over four years (Frick, Kimonis, Dandreaux, & Farell, 2003), and stability from late adolescence to early adulthood (Blonigen, Hicks, Kruger, Patrick, & Iacono, 2006). It should be noted that no benchmark has been established for determining the stability or instability of psychopathic traits.

Hart, Watt, and Vincent (2002) caution against the conceptualization of psychopathy as a personality disorder in juveniles, given limited evidence for the stability of general personality traits in childhood and adolescence (McCrae et al., 2002; Roberts & DelVecchio, 2000). Others offer similar warnings about characterizing youth as having stable psychopathic personality traits during periods of continuing social and emotional development (Edens et al., 2001) and the risks of misconstruing normative, transient developmental phenomena as indicators of psychopathy in youth (Seagrave & Grisso, 2002).

Second, there has been worry about the legal and long-term ramifications of labeling youth as psychopathic. There are several potential policy implications of using psychopathy assessments to aid transfer, release, sentencing, and treatment decisions about youth involved in the criminal justice system (Lyon & Ogloff, 2000; Marczyk et al., 2005; Penney & Moretti, 2005; Zinger & Forth, 1998). For example, if a youth is assessed as psychopathic, he or she may be deemed untreatable and at high risk for future violence, factors that are weighted in decisions regarding transfer to the adult system. There is also the danger that the label will follow youth in legal and medical records, having a lifetime impact. In line with these policy concerns, research has indicated that the pejorative label of “psychopath” may lead to negative and more punitive

consequences for youth involved in the criminal justice system (Edens, Guy, & Hernandez, 2003; Edens, Petrila, & Buffington-Vollum, 2001; Murrie, Cornell, & McCoy, 2005; Steinberg, 2002).

Finally, critics have questioned the validity and appropriateness of directly extending adult conceptualizations of psychopathy to youth. In terms of measurement, the PCL:YV is a direct downward extension of the PCL-R, resting on the assumption that psychopathic traits manifest similarly in youth and adults (Edens et al., 2001; Lynam & Gudonis, 2005). Given the enormity of developmental change during childhood and adolescence, there is reason to be cautious about this downward extension. Johnstone and Cooke (2004) have noted that the conceptual properties of the youth psychopathy instruments are not developmentally informed. Skeem and Cauffman (2003) found that measures of psychopathic traits in youth have poor construct validity because they show greater overlap with measures of psychosocial maturity than with each other. Others have argued psychopathy as a personality disorder may not exist in childhood and adolescence (Hart et al., 2002).

Onset of Psychopathy

As a result of the serious concerns regarding the assessment and application of psychopathy to youth samples, there has been a movement in recent years to investigate psychopathic traits from a developmental perspective (Frick, 2002; Salekin & Frick, 2005; Vincent & Grisso, 2005). In this way, concepts and methods from the general literature on developmental psychopathology can be used to inform our understanding of the etiology, onset, presentation, and course of psychopathy.

One developmental concept of potential utility in the investigation of psychopathic traits in youth is age of onset. The notion of age of onset has proven valuable in the study of a variety of developmental disorders (Burke, Burke, Reiger, & Rae, 1990) as well as delinquent and criminal behavior (Farrington et al., 1990). For example, conduct disordered youth have been differentiated in terms of developmental course, etiology, and outcome based on the onset of behavioral problems. Moffitt (1993) proposed a taxonomy in which delinquent youth can be categorized as following *life-course persistent* or *adolescence-limited* trajectories of antisocial behavior. Individuals in the life-course persistent cluster constitute a small group demonstrating an early onset of severe conduct problems and persistent antisocial behavior into adulthood. Those on the adolescence-limited path are a larger group who show a later onset of more normative levels of conduct problems which typically desist by early adulthood.

In terms of etiology, Moffitt (1993) asserts that life course persistent antisocial behavior is thought to originate from the combination of neurological impairments and an adverse early environment whereas adolescence limited antisocial behavior emerges during the pubertal gap between biological and social maturity as an imitation of deviant peers in the effort to gain autonomy. In terms of outcome, a large body of research has demonstrated that the presence of early onset conduct problems is associated with more serious, frequent, and persistent delinquency (Loeber, 1982; Moffitt, 2006; Tolan, 1987). The identification of subtypes of conduct disorder based on onset has also been recognized as an important goal that assists clinical practitioners in tailoring interventions for specific populations (Hinshaw, Lahey, & Hart, 1993; Lahey et al., 1998).

The importance of onset in delinquent youth is reflected in the contemporary diagnosis of Conduct Disorder, which subtypes the disorder based on age of onset. The *childhood-onset* type appears before age 10 whereas the *adolescent-onset* type develops symptoms at age 10 or older (APA, 1994). According to the DSM-IV, the onset of Conduct Disorder may be as early as age 5, with early onset predicting worse prognosis. Onset is rare after age 16, and most conduct disordered youth show symptom remission by adulthood. Individuals with childhood onset are more likely to be physically aggressive, have disturbed peer relationships, demonstrate persistent conduct problems, and maintain antisocial behavior patterns into adulthood (APA, 1994).

In the area of psychopathy, the concept of onset has received little attention. Theorists have long postulated that the roots of psychopathy lie in childhood, with an early onset of observable traits and behaviors (Cleckley, 1976; Hare, 2003; McCord & McCord, 1964; Millon, 1981). Retrospective studies of adults have traced the onset of psychopathic symptoms back to childhood, as young as 6 to 10 years of age (Robins, 1966, 1978; Widiger et al., 1996). Adult psychopathy has been linked to a number of childhood and adolescent behavior problems (Loeber, 1982; Harris, Rice, & Quinsey, 1994) with the most severely antisocial children being more likely to receive an adult diagnosis of psychopathy (Moffitt, Caspi, Harrington, & Milne, 2002). Further, research with adults has consistently shown that psychopathic offenders begin their antisocial behavior at a young age (Hart & Hare, 1997).

There is some recognition of early behavioral indicators of psychopathy in the diagnosis of the disorder. Item 12 (*Early Behavior Problems*) of the adult and youth versions of the Psychopathy Checklist (Forth et al., 2003; Hare, 2003) measures serious

childhood behavior problems occurring before age 10 (PCL:YV) or 12 (PCL-R). According to the PCL:YV manual, these non-normative externalizing problems include persistent lying, cheating, theft, robbery, fire-setting, truancy, disruption of classroom activities, substance abuse, vandalism, violence, bullying, running away from home, and precocious sexual activities. It has been argued that presence of early behavioral problems is central to the construct of psychopathy (Quinsey, Harris, Rice, & Cormier, 1998, 2006). The PCL-R manual (Hare, 2003) also identifies juvenile delinquency as an indicator of adult psychopathy through Item 18 (*Juvenile Delinquency*). Specifically, this item assesses serious antisocial behavior before the age of 18 leading to formal contact with the criminal justice system, including charges and convictions for criminal and statutory offenses. There is no explicit measurement of early manifestations of maladaptive interpersonal styles or affective deficits in the assessment of psychopathic traits in adults or youth.

There has been little empirical work examining the link between psychopathic traits in youth and the onset of dysfunction. Adolescent offenders with high PCL:YV scores consistently display a younger age at first arrest or conviction (Brandt et al., 1997; Corrado et al., 2004; Dolan & Rennie, 2006; Forth et al., 1990; Vincent et al., 2003), antisocial behavior (Dolan & Rennie, 2006; Forth, 1995; Forth & Burke, 1998), and criminal offending (Forth & Mailloux, 2000; Gretton et al., 2004). Higher levels of psychopathic traits have been associated with a greater likelihood of having childhood-onset conduct problems (Smith et al., 1997) and specifically with an earlier onset of aggressive and property destruction conduct disorder symptoms (Rogers et al., 1997). Higher PCL:YV scores in adolescents have also been related to an earlier onset of drug

and alcohol use as well as school behavior problems (Campbell et al., 2004; Corrado et al., 2004; Mallioux et al., 1997; Vincent et al., 2003). Thus, there is some empirical evidence that high levels of psychopathic traits in youth are related to an earlier onset of criminality and behavior problems. However, there is no research that has examined psychopathic traits in relation to the onset of interpersonal or affective dysfunction.

The Current Study

There is a growing body of research suggesting that the construct of psychopathy may have utility in youth samples. For example, there is some evidence that psychopathic traits in youth operate similarly to adult psychopathy in terms of their relationship with important negative outcomes, such as violence and criminality. However, the application of the psychopathy construct to youth remains controversial due to serious developmental and ethical concerns as well as a lack of prospective studies. To better understand the etiology and course of psychopathy, it is necessary to take a developmental approach in the investigation of the disorder.

Theoretical descriptions and the contemporary assessment of psychopathy assume that the roots of the disorder lie in childhood. There is some empirical evidence that adolescents with high levels of psychopathic traits demonstrate an earlier onset of behavioral difficulty and criminal justice involvement. However, to date, there has been no investigation of the onset of psychopathic traits *per se*, especially the core interpersonal and affective features of the disorder.

The current study aimed to retrospectively investigate the ages of onset of psychopathic traits in a sample of male adolescent offenders using a retrospective design. The research questions were as follows: First, can the ages of onset of psychopathic traits

be measured reliably? Second, what are the median ages of onset of the interpersonal, affective, behavioral, and antisocial traits of psychopathy? Third, what are the patterns of trait onset across development? Fourth, when are the developmental periods of increased risk for the onset of psychopathic traits in youth?

Method

Overview

The current research protocol was administered in the course of an ongoing research study examining gender and aggression in high-risk youth. Semi-structured interviews and self-report measures were administered to a sample of incarcerated juveniles and adolescents from a provincial assessment centre to examine various psychosocial factors that may contribute to the prediction and developmental course of aggression and violence.

Participants and Procedure

Participants were 115 male young offenders incarcerated in British Columbia, Canada, and recruited from the population of juveniles who were detained between the years of 2004 and 2005. The ages of participants ranged from 13 to 20 ($M = 16.3$, $SD = 1.4$). The ethnic composition of the sample included 50% ($n = 58$) Caucasian, 41% ($n = 47$) Aboriginal, and 9% ($n = 10$) other. The mean self-reported number of years of education was 9.2 ($SD = 1.2$, Range 6 – 12). Sixty-three percent ($n = 72$) of youth were incarcerated in maximum security custody and 37% ($n = 43$) were in a minimum security custody setting. Thirty-four percent ($n = 39$) of youth were on remand and 66% ($n = 76$) were sentenced. Forty-two percent ($n = 48$) were incarcerated for a violent offence. Mean sentence length was 173 days ($SD = 197$).

Incarcerated youth were identified and approached by a psychology graduate student to ascertain interest in participation. An attempt was made to approach 130 youth

and 115 agreed to participate (i.e., a 12% refusal rate). Parents/legal guardians refused consent for seven youth, and eight youth refused to participate in the study. Informed consent was obtained from all youth prior to beginning the study protocol and consent from a legal guardian was also secured for all youth. Specifically, youth were informed of the benefits, risks, and voluntary nature of their participation. Each youth received snacks for participation and the protocol lasted, on average, one to two hours per participant. The study received ethics approval from the university ethics review board as well as that of the custodial institutions. All youth were treated in accordance with ethical standards set forth by the American Psychological Association.

Psychopathy Checklist: Youth Version

The PCL:YV (Forth et al., 2003) is an rating scale scored on the basis of a semi-structured interview and file review. It is designed to rate adolescents aged 12 to 18 on traits indicative of psychopathy. Each of 20 items is rated on a three-point scale (0 = *not present*, 1 = *maybe / possibly present*, 2 = *definitely present*), based on its pervasiveness, severity, and chronicity over the lifetime. Total scores range from 0 to 40 and can be prorated if five or fewer items are omitted due to lack of information.

PCL:YV ratings were made by one of three trained and experienced psychology graduate students.² Interviewers gathered historical and current information pertaining to family, school, work, relationships, feelings, attitudes, as well as mental health and offending histories. Collateral information was obtained from institutional files

²All raters underwent a PCL:YV training session with an expert in adolescent psychopathy who had experience administering the measure to offenders. The training involved a one-day workshop including an overview of psychopathic traits in adolescents; a description of the PCL:YV items, and guidelines on scoring the items. Prior to the start of data collection, between five and eight training assessments were conducted and a minimum interrater reliability of .85 for the Total score was attained.

containing criminal records, daily progress logs, pre-sentence reports, psychological assessments, and social worker evaluations.

Interrater reliability for PCL:YV item scores was calculated using single-rater intraclass correlation coefficients (ICCs; Shrout & Fleiss, 1979) using a two-way random effects model with agreement defined as absolute (McGraw & Wong, 1996). Interrater reliabilities for item scores are reported in Table 1. According to Cicchetti and Sparrow (1981), ICC values of less than .40 may be considered poor, .40-.59 fair, .60-.74 good, and .75 and above excellent. Interrater reliabilities for PCL:YV item scores thus ranged from fair to excellent.

Table 1

Interrater Reliability, Percentages and Frequencies for PCL:YV Item Scores

	Score of 0		Score of 1		Score of 2		
	<i>ICC₁</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Impression Management	.79***	41	47	49	56	10	12
Grandiose	.50***	19	22	53	61	28	32
Stimulation Seeking	.65***	1	1	15	17	84	97
Pathological Lying	.50***	7	8	68	78	25	29
Manipulation	.53***	14	16	42.5	49	43.5	50
Lack of Remorse	.56***	4	5	54	62	42	48
Shallow Affect	.40**	43	49	46	53	11	13
Callous / Lack of Empathy	.41**	0	0	36.5	42	63.5	73
Parasitic Orientation	.46**	8	9	63.5	73	28.5	33
Poor Anger Control	.87***	1	1	27	31	72	83
Impersonal Sexual Behavior	.72***	23	26	49	56	29	33
Early Behavior Problems	.66***	12	14	46	53	42	48
Serious Behavior Problems	.51***	0	0	9	10	91	105
Lacks Goals	.41**	8	9	56.5	65	35.5	41
Impulsivity	.71***	1	1	45	52	54	62
Irresponsibility	.42**	0	0	29	33	71	82
Failure to Accept Responsibility	.49**	7	8	41	47	52	60
Unstable Interpersonal Relationships	.39	15	17	59	68	26	30
Serious Criminal Behavior	1.0**	0	0	32	37	68	78
Violations of Conditional Release	1.0**	10	12	7	8	83	95
Criminal Versatility	1.0**	24	28	38	44	37	43

Note. PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003).

** $p < .01$. *** $p < .001$.

This study investigated the three dimensions of psychopathy defined by Cooke and Michie (2001), including Arrogant and Deceitful Interpersonal Style (Factor 1), Deficient Affective Experience (Factor 2), and Impulsive and Irresponsible Behavioral Style (Factor 3) in addition to the Antisocial Behavior factor of the four-factor model (Hare, 2003). Descriptive statistics for PCL:YV Total and Factor scores are reported in Table 2 and inter-correlations among Factor scores are reported in Table 3. Using partial correlations to control for the other Factor scores, PCL:YV Total scores were significantly correlated (all p 's < .001) with Factor 1, $r = .81$, Factor 2, $r = .78$, Factor 3, $r = .80$, and Factor 4, $r = .83$, scores. No cutoff score has been established to designate categorical classifications of psychopathy using the PCL:YV. However, using the traditional adult cutoffs, 37% percent ($n = 43$) of youth scored in the high range (30-40) of psychopathic traits, 48% ($n = 55$) scored in the moderate range (20-29), and 15% ($n = 17$) scored in the low range (0-19).

To assess interrater reliability for PCL:YV Total and Factor scores, single-rater ICCs were computed on a random subset of cases (30%, $n = 35$) using a two-way random effects model with agreement defined as absolute. Interrater reliabilities and internal consistencies for PCL:YV Total and Factor scores are reported in Table 2. Interrater reliabilities for PCL:YV Total and Factor scores were in the good to excellent range.

Table 2

Descriptive Statistics for PCL:YV Total and Factor Scores

	M (SD)	Range	ICC ₁	α
PCL:YV Total	26.8 (6.3)	9 – 39	.97	.86
Factor 1 (Interpersonal)	4.3 (1.9)	1 – 8	.80	.71
Factor 2 (Affective)	4.3 (1.6)	2 – 8	.70	.64
Factor 3 (Behavioral)	7.6 (1.9)	2 – 10	.73	.72
Factor 4 (Antisocial)	8.2 (1.9)	3 – 10	.96	.65

Note. PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003).

Table 3

Correlations Among PCL:YV Factor Scores

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1 (Interpersonal)	-----	.49***	.50***	.38***
Factor 2 (Affective)		-----	.54***	.34***
Factor 3 (Behavioral)			-----	.37***
Factor 4 (Behavioral)				-----

Note. PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003).

*** $p < .001$.

Age of Onset Ratings

Assessment of Age of Onset. Age of onset was assessed by augmenting the standard PCL:YV interview in several ways. First, following the PCL:YV item descriptions, multiple indicators of each item were generated (see Appendix A). Indicators were designed to reflect attitudes and feelings as well as overt behaviors. For example, for Item 8 (Callous/Lacks Empathy), youth were asked if they had ever stolen from family, hurt animals on purpose, engaged in verbal abuse, or bullied. They were also asked about attitudes and feelings such as believing “stupid people deserve what they get” and having a difficult time understanding the emotions of others.

Second, if any indicator was endorsed, youth were asked to report the age or grade the behavior, attitude, or feeling first occurred. Although the reliability and validity of retrospective reports of age of onset have been questioned (Angold, Erkanli, Costello, & Rutter, 1996; Henry, Moffitt, Caspi, Langley, & Silva, 1994; Robins et al., 1985; Sanford et al., 1999; Yarrow, Campbell, & Burton, 1970), recent research has suggested that adolescents can be accurate informants of their own age of onset of symptoms related to delinquency (Lahey, et al., 1999; Silverthorn, Frick, & Reynolds, 2001).

Coding of Age of Onset. To code age of onset, raters made use of information gathered during the interview as well as collateral information gathered during the file review. The minimum age of onset for any item was set at age 5 due to recall difficulties and poor quality of file information for years below this age. The age restrictions for Item 12 (*Early Behavioral Problems*) – only counting behaviors occurring at age 10 and below – were removed and the item name was changed to Serious Behavioral Problems.

Age of onset was coded for each scoring level of the items. If the item was scored a 0, there was no age of onset. If the item was scored a 1, the age of onset for this level was coded. If an item was scored a 2, the age of onset for both scores of 1 and 2 were coded (Table 4). Means, standard deviations, and ranges for ages of onset of all indicators are reported in Appendix A.

Table 4

Coding Age of Onset

	Score	Age Onset Score of 1	Age Onset Score of 2
Item A	0	-----	-----
Item B	1	Age X	-----
Item C	2	Age X	Age Y

Analytic Strategy: Survival Analysis

To investigate the ages of onset of the psychopathic traits, survival analysis was employed. Survival analysis allows for the understanding and modeling of the time to the occurrence of a target event through the simultaneous exploration of whether the event occurs and, if so, when (Luke & Holman, 1998; Singer & Willett, 1991, 1993; Willett & Singer, 1993; Willett, Singer, & Martin, 1998). The primary dependent variable of interest in survival analysis is the average length of time to a target event, although the method can also be used to reveal patterns of event occurrence, compare these patterns between groups, and elucidate time periods of elevated risk of event occurrence.

Survival analysis is well suited for incomplete data sets in which some participants have not experienced the target event by the time of data collection. For

example, not all of the current sample scored a 1 or 2 on the PCL:YV items. These cases are labeled *censored* because knowledge concerning their outcome is imprecise. Specifically, all that is known about censored cases is that the individual did not experience the target event by the end of the observation period; it is unknown whether the event will occur some time in the future. In the current study, it is unknown whether individuals who did not demonstrate psychopathic traits at the time of the data collection will go on to experience the onset of these traits at a later time.

Survival analysis deals with both censored and *uncensored* cases (known time of event occurrence) by including information from censored cases in the analysis up to the point at which they are censored. Thus, survival analysis allows for the inclusion of a key group of individuals: those who are least likely to experience the event of interest. Exclusion of these individuals would result in an underestimation of the average time to event occurrence. Censoring status and *survival time* are the only variables necessary to perform a basic survival analysis. Survival time for uncensored cases is the time of event occurrence and survival time for censored cases is set at the time at which data collection ended. In the current study, survival time for uncensored cases was the age of onset of a psychopathic trait and survival time for censored cases was set at the current age of the youth. One assumption of survival analysis is that censoring status is unrelated to event occurrence; in other words, the pattern of censoring should not be related to the likelihood of occurrence of the event of interest.

Survival and Hazard Functions. Survival and hazard functions can be used to describe the pattern of occurrence of the target event. *Survival probability* refers to the proportion of the sample that has not experienced the target event in any particular time

period (e.g., how many youth in the sample have not experienced the onset of a psychopathic trait at age 10?). The *survival function* is a plot of survival probabilities against time. The survival function begins at 1.00 when no individuals have experienced the target event and drops toward 0 as time passes. The *median survival time* represents the amount of time that passes before half the sample experiences the target event and can be identified as the time at which the survival function equals 0.5. The survival function can thus be used to answer the descriptive question: on average, how many years pass until the onset of a psychopathic trait?

Hazard probability refers to the proportion of the *risk set* – the number of individuals who have not yet experienced the target event – that experience the event during a particular time period. In other words, it is the probability of event occurrence in a particular time interval, given that the individual has not yet experienced the target event (e.g., how many youth in the sample who have yet to demonstrate the onset a psychopathic trait first show the trait at age 10?). This definition is inherently conditional because individuals who experience the target event are no longer members of the risk set for future time periods, thus ensuring that all individuals remain in the risk set until the last period when they are eligible to experience the target event. The *hazard function* plots the hazard probabilities in each time period, capturing the distribution of fluctuating risk of event occurrence across time. Increases in the magnitude of the hazard function represent periods of elevated risk for target event occurrence. The hazard function can thus be used to answer the descriptive question: what are the time periods of elevated risk for the onset of a psychopathic trait?

Results

Reliability of Age of Onset Ratings

To evaluate the reliability of age of onset ratings, intraclass correlation coefficients were computed for a subset of cases (30%, $n = 34$) rated by two of the three raters.³ Interrater reliability estimates for the ages of onset of scores of 1 and scores of 2 on all traits are reported in Table 5. ICCs for scores of 1 and 2 on the traits ranged from fair to excellent with reliability estimates for items scored from official records (*Serious Criminal Behavior, Violations of Conditional Release, Criminal Versatility*) demonstrating perfect agreement.

For age of onset ratings for a score of 1, interrater reliability was excellent for Impersonal Sexual Behavior and Serious Behavior Problems, good for Stimulation Seeking, Lacks Remorse, Callous/Lacks Empathy, Parasitic Orientation, Irresponsibility, and Failure to Accept Responsibility, fair for Impression Management, Grandiosity, Pathological Lying, Manipulation, Shallow Affect, Poor Anger Control, Lacks Goals, and Impulsivity and poor for Unstable Interpersonal Relationships.

For age of onset ratings for a score of 2, interrater reliability was excellent for Lacks Remorse and Shallow Affect, good for Unstable Interpersonal Relationships, fair for Impression Management, Stimulation Seeking, Pathological Lying, Manipulation,

³The n for the interrater reliability analyses differ based on the number of cases for which two ratings were available. Specifically, cases in which an item received a score of 0 by both raters were not included in the reliability analyses and cases in which both raters scored a 1 or a 2 on an item were all included. Cases in which one rater scored a 0 and the other scored a 1 were not included in the reliability analysis. Cases in which one rater scored a 1 and the other scored a 2 were included for the score of 1 reliability analysis but not for the score of 2 analysis. Reliability estimates for cases with small sample sizes ($n < 15$) may be unstable and should be interpreted with caution.

Callous/Lacks Empathy, Parasitic Orientation, Poor Anger Control, and Failure to Accept Responsibility, and poor for Grandiosity, Impersonal Sexual Behavior, Serious Behavior Problems, Lacks Goals, Impulsivity, and Irresponsibility.

Overall, using a value of .40 as a minimum for a fair level of reliability, there are several items for which results should be interpreted with caution due to low reliability estimates. These include scores of 1 on Unstable Interpersonal Relationships and scores of 2 on Grandiosity, Impersonal Sexual Behavior, Serious Behavior Problems, Lacks Goals, Impulsivity, and Irresponsibility.

According to McGraw and Wong (1996), the intraclass correlation coefficient is constructed using models that assume equal variance and normally distributed variables. Because differences in sample variances for variables will attenuate ICCs, they are only appropriate measures of agreement when there is a common population variance for all measurement conditions. As noted in Appendix B, the age of onset ratings for the two raters have differing variances and many of the age onset variables were not normally distributed. In such a case, it is advisable to use a non-parametric measure. Thus, an additional measure, the Goodman-Kruskal Gamma, a non-parametric measure of association based on the difference between concordant and discordant pairs (Gibbons, 1993), was also used to examine the reliability of age of onset ratings. Gamma values for scores of 1 and scores of 2 on all traits are reported in Table 5.

To investigate interrater reliability for all traits and between factors, mean reliability estimates were calculated for all items comprising the total score as well as for Factors 1, 2, and 3 (Table 5). In general, reliabilities for age onset ratings were higher and less variable for scores of 1 compared to scores of 2. Among the Factors, for a score of 1,

reliability was similar for Factors 2 and 3, and lower for Factor 1. For a score of 2, interrater reliability was lowest for Factors 1 and 3 and higher for Factor 2.⁴

⁴A mean reliability estimate was not calculated for Factor 4 due to the inflation caused by the perfect agreement on the criminality items.

Table 5
Interrater Reliabilities for Age of Onset Ratings

	Score of 1				Score of 2			
	<i>n</i>	<i>r</i>	<i>Gamma</i>	<i>ICC₁</i>	<i>n</i>	<i>r</i>	<i>Gamma</i>	<i>ICC₁</i>
All Items								
Mean (<i>SD</i>)		.65 (.21)	.60 (.21)	.64 (.21)		.54 (.27)	.49 (.26)	.55 (.27)
Factor 1 (Interpersonal)								
Impression Management	19	.41	.36	.41*	7	.56	.47	.58
Grandiosity	32	.54*	.51*	.54*	12	.23	.30	.18
Pathological Lying	33	.44*	.34	.45*	9	.44	.48	.40
Manipulation	33	.49*	.54*	.48*	20	.48*	.69*	.47*
F1 Mean (<i>SD</i>)		.47 (.06)	.44 (.10)	.47 (.05)		.43 (.14)	.49 (.16)	.41 (.17)
Factor 2 (Affective)								
Lacks Remorse	33	.67*	.63*	.66*	20	.78*	.51*	.77*
Shallow Affect	28	.56*	.51*	.55*	6	.85*	.50	.87*
Callous/Lacks Empathy	34	.66*	.61*	.62*	26	.54*	.40*	.54*
Failure to Accept Responsibility	34	.74*	.61*	.73*	22	.64*	.56*	.59*
F2 Mean (<i>SD</i>)		.66 (.07)	.59 (.05)	.64 (.08)		.70 (.14)	.49 (.07)	.69 (.15)
Factor 3 (Behavioral)								
Stimulation Seeking	34	.73*	.66*	.73*	29	.56*	.55*	.56*
Parasitic Orientation	30	.65*	.49*	.64*	13	.47	.33	.49*
Lacks Goals	32	.50*	.42*	.51*	16	.18	.21	.19
Impulsivity	34	.59*	.50*	.59*	19	.34	.15	.35
Irresponsibility	34	.74*	.68*	.72*	27	.33	.36	.32
F3 Mean (<i>SD</i>)		.64 (.10)	.55 (.11)	.64 (.09)		.38 (.15)	.32 (.15)	.38 (.15)
Factor 4 (Antisocial)								
Poor Anger Control	34	.43*	.39*	.42*	24	.48*	.30	.49*
Serious Behavior Problems	34	.84*	.77*	.84*	31	.20	.24	.20
Serious Criminal Behavior	34	1.0*	1.0*	1.0*	26	1.0*	1.0*	1.0*
Violations of Conditional Release	28	1.0*	1.0*	1.0*	27	1.0*	1.0*	1.0*
Criminal Versatility	27	1.0*	1.0*	1.0*	12	1.0*	1.0*	1.0*
Impersonal Sexual Behavior	29	.76*	.71*	.75*	14	.29	.21	.29
Unstable Interpersonal Relationships	31	.24*	.30*	.25	13	.73*	.54*	.71*

* $p < .05$.

Median Ages of Onset of Psychopathic Traits

Kaplan-Meier survival analysis (Kaplan & Meier, 1958) was used to compute the median ages of onset of psychopathic traits. Median ages of onset with 95% confidence intervals for scores of 1 and 2 on each trait are reported in Table 6. Median ages of onset are also shown in Figure 1 (scores of 1) and Figure 2 (scores of 2). In Table 7, the 50th percentile column represents the median age of onset and the 25th and 75th percentile columns represent the ages by which 25% and 75%, respectively, of the sample have yet to reach a score of 1 or a score of 2.

Median ages of onset for all traits ranged from age 6 to 15 ($M = 11.0$, $SD = 2.5$) for a score of 1 and from age 10 to 15 ($M = 13.5$, $SD = 1.4$) for a score of 2. For Factor 1 (Interpersonal), median ages of onset for traits ranged from age 9 to 14 ($M = 11.5$, $SD = 2.1$) for a score of 1 and age 13 to 15 ($M = 13.8$, $SD = 1.0$) for a score of 2. For Factor 2 (Affective), median ages of onset ranged from age 8 to 11 ($M = 9.5$, $SD = 1.7$) for a score of 1 and age 12 to 14 ($M = 12.8$, $SD = 1.0$) for a score of 2. For Factor 3 (Behavioral), median ages of onset ranged from age 9 to 13 ($M = 10.8$, $SD = 1.6$) for a score of 1 and age 13 to 15 ($M = 13.8$, $SD = 0.84$) for a score of 2. For Factor 4 (Antisocial), median ages of onset ranged from age 6 to 15 for a score of 1 and age 10 to 15 for a score of 2. Averages for Factor 4 were not calculated due to the influence of the median ages of onset of the criminality items (*Serious Criminal Behavior*, *Violations of Conditional Release*, *Criminal Versatility*) which were artificially restricted by the minimum legal age for arrest (12).

For a score of 1, the traits with earliest median onset were Serious Behavior Problems (age 6), Poor Anger Control (age 7), Lacks Remorse (age 8), and Callous/Lacks

Empathy (age 8). The traits with the latest median onset for a score of 1 were Impression Management (age 14), Lacks Goals (age 13), and Impersonal Sexual Behavior (age 13). For a score of 2, the traits with the earliest median onset were Serious Behavior Problems (age 10), Poor Anger Control (age 11), Lacks Remorse (age 13), and Callous/Lacks Empathy (age 13). The traits with the latest median onset for a score of 2 were Impression Management (age 15) and Lacks Goals (age 15).

An examination of the ages of onset for the 75th percentile for a score of 1 allows for an observation of which traits may be appearing earliest of all. The ages of onset for the 75th percentile column denote the ages by which 75% of the sample has “survived” (i.e., has yet to score a 1 on the trait). In other words, it is the age by which 25% of the sample has scored a 1 on the trait. For all items, the 75th percentile ages of onset ranged from age 5 to 14 ($M = 8.7$, $SD = 3.0$) for a score of 1. Additionally, for a score of 1, the 75th percentile ages of onset ranged from age 6 to 12 ($M = 8.8$, $SD = 2.8$) for Factor 1 (Interpersonal), from age 5 to 8 ($M = 6.5$, $SD = 1.3$) for Factor 2 (Affective), from age 6 to 12 ($M = 8.4$, $SD = 2.5$) for Factor 3 (Behavioral), and from age 5 to 14 ($M = 10.0$, $SD = 4.6$) for Factor 4 (Behavioral).

Overall, for a score of 1, the traits demonstrated earliest by 25% of the sample were Poor Anger Control (age 5), Serious Behavior Problems (age 5), Callous/Lacks Empathy (age 5), Lacks Remorse (age 6), Pathological Lying (age 6), and Stimulation Seeking (age 6). The traits demonstrated earliest by 25% of the sample for a score of 2 were Poor Anger Control (age 9), Serious Behavior Problems (age 9), Lacks Remorse (age 10), Shallow Affect (age 10), and Callous/Lacks Empathy (age 10).

Table 6

Median Ages of Onset of Psychopathic Traits

	Score of 1	Score of 2
	Median Age Onset (95% CI)	Median Age Onset (95% CI)
All Items		
Mean (<i>SD</i>)	11.0 (2.5)	13.5 (1.4)
Factor 1 (Interpersonal)		
Impression Management	14 (13-15)	15 (14-16)
Grandiose	11 (10-12)	14 (13-15) ^a
Pathological Lying	9 (8-10)	13 (12-14)
Manipulation	12 (11-13)	13 (12-14)
F1 Mean (<i>SD</i>)	11.5 (2.1)	13.8 (1.0)
Factor 2 (Affective)		
Lack of Remorse	8 (7-9)	12 (11-13)
Shallow Affect	11 (10-12)	13 (9-17)
Callous / Lack of Empathy	8 (7-9)	12 (11-13)
Failure to Accept Responsibility	11 (10-12)	14
F2 Mean (<i>SD</i>)	9.5 (1.7)	12.8 (1.0)
Factor 3 (Behavioral)		
Stimulation Seeking	9 (8-10)	13
Parasitic Orientation	12	14 (13-15)
Lacks Goals	13	15 (14-16) ^a
Impulsivity	10 (9-11)	13 (12-14) ^a
Irresponsibility	10 (9-11)	14 ^a
F3 Mean (<i>SD</i>)	10.8 (1.6)	13.8 (.84)
Factor 4 (Antisocial)		
Poor Anger Control	7 (6-8)	11 (10-12)
Serious Behavior Problems	6 (5-7)	10 (9-11) ^a
Serious Criminal Behavior	14	15
Violations of Conditional Release	14	15
Criminal Versatility	15	15 (14-16)
Impersonal Sexual Behavior	13	14
Unstable Interpersonal Relationships	12 (11-13) ^a	14 (13-15)

^aMedian ages of onset for these items should be interpreted with caution due to

potentially unreliable age of onset judgments.

Table 7

Ages of Onset of Psychopathic Traits by Percentile

	Score of 1			Score of 2		
	75 th percentile (SE)	50 th percentile (SE)	25 th percentile (SE)	75 th percentile (SE)	50 th percentile (SE)	25 th percentile (SE)
Factor 1 (Interpersonal)						
Impression Management	12 (.79)	14 (.39)	15 (.29)	14 (.60)	15 (.43)	17
Grandiose	7 (1.0)	11 9.56)	13 (.43)	12 (.37)	14 (.46)	15 (.52)
Pathological Lying	6 (.33)	9 (.50)	12 (.30)	12 (2.49)	13 (.54)	15 (.51)
Manipulation	10 (.53)	12 (.31)	13 (.33)	13 (.32)	13 (.27)	14 (.32)
Factor 2 (Affective)						
Lack of Remorse	6	8 (.70)	12 (.45)	10 (.53)	12 (.38)	14 (.63)
Shallow Affect	8 (.95)	11 (.76)	14 (.45)	10 (4.16)	13 (1.8)	16 (.32)
Callous / Lack of Empathy	5	8 (.63)	10 (.50)	10 (.62)	12 (.31)	14 (.19)
Fail Accept Responsibility	7 (.79)	11 (.47)	13 (.29)	13 (.37)	14 (.25)	15 (.24)
Factor 3 (Behavioral)						
Stimulation Seeking	6	9 (.42)	11 (.34)	12 (.22)	13 (.15)	14 (.15)
Parasitic Orientation	10 (.54)	12 (.25)	13 (.26)	13 (.39)	14 (.28)	16 (.27)
Lacks Goals	12 (.21)	13 (.21)	14 (.21)	14 (.39)	15 (.29)	16 (.34)
Impulsivity	7 (.76)	10 (.29)	12 (.37)	12 (.41)	13 (.30)	14 (.31)
Irresponsibility	7 (.36)	10 (.44)	12 (.27)	12 (.29)	14 (.18)	15 (.20)
Factor 4 (Antisocial)						
Poor Anger Control	5	7 (.44)	10 (.56)	9 (.45)	11 (.43)	13 (.35)
Serious Behavior Problems	5	6 (.44)	8 (.48)	9 (.30)	10 (.31)	12 (.28)
Serious Criminal Behavior	13 (.25)	14 (.19)	15 (.12)	14 (.28)	15 (.23)	16 (.18)
Violations of Conditional Release	13 (.21)	14 (.18)	15 (.11)	14 (.26)	15 (.16)	15 (.18)
Criminal Versatility	14 (.29)	15 (.19)	16 (.13)	14 (.38)	15 (.40)	16 (.22)
Impersonal Sexual Behavior	12 (.44)	13 (.20)	14 (.17)	13 (.30)	14 (.22)	15 (.34)
Unstable Interpersonal Relationships	8 (.97)	12 (.54)	13 (.29)	12 (.91)	14 (.54)	15 (.18)

Note. For a score of 1, the ages of onset for the 75th percentile column denote the ages by which 75% of the sample has “survived”

(i.e., has yet to score a 1 on the trait). In other words, it is the age by which 25% of the sample has scored a 1 on the trait.

Figure 1. Median Ages of Onset of Psychopathic Traits for Scores of 1.

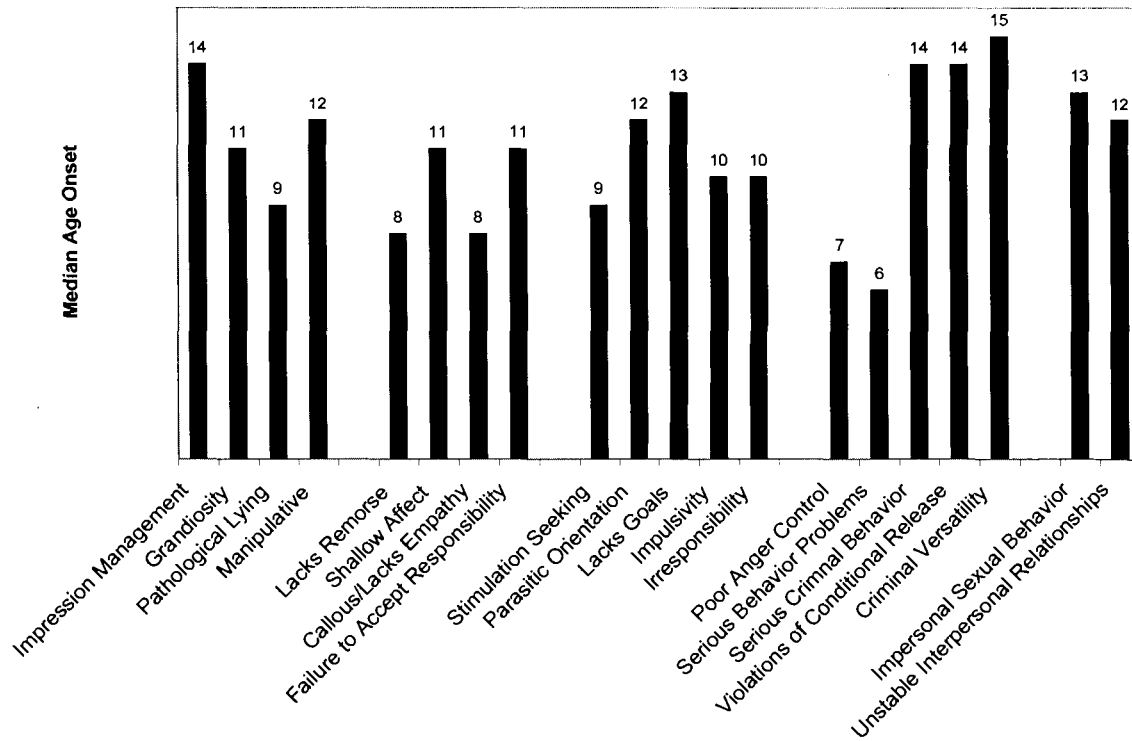
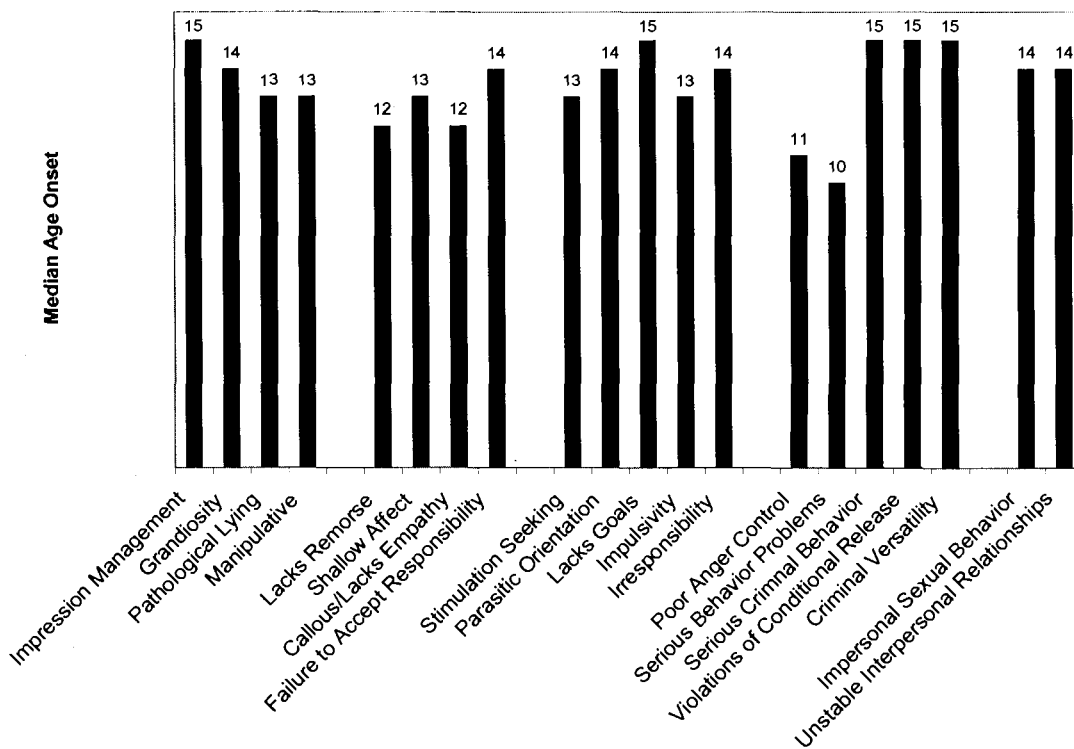


Figure 2. Median Ages of Onset of Psychopathic Traits for Scores of 2.



Survival Functions: Patterns of Onset of Psychopathic Traits

An examination of the survival functions for the various psychopathic traits allows for an exploration of the patterns of onset of traits across development (Figures 3 to 10). For scores of 1 on interpersonal traits (Figure 3), there were similar onset patterns for all traits. By age 5, 20% of the sample had scored a 1 on Pathological Lying and Grandiosity. By age 12, when 85% of youth had scored a 1 on Pathological Lying, only 30% had scored a 1 on Impression Management. For scores of 2 on interpersonal traits (Figure 4), by age 8, 20% of the sample had scored a 2 on Pathological Lying, whereas very few youth had scored a 2 on the other traits. By age 12, when 30% of the sample had scored a 2 on Grandiosity, Pathological Lying, and Manipulation, no youth had scored a 2 on Impression Management.

Figure 3. Survival Function for Scores of 1 on PCL:YV Factor 1 Traits.

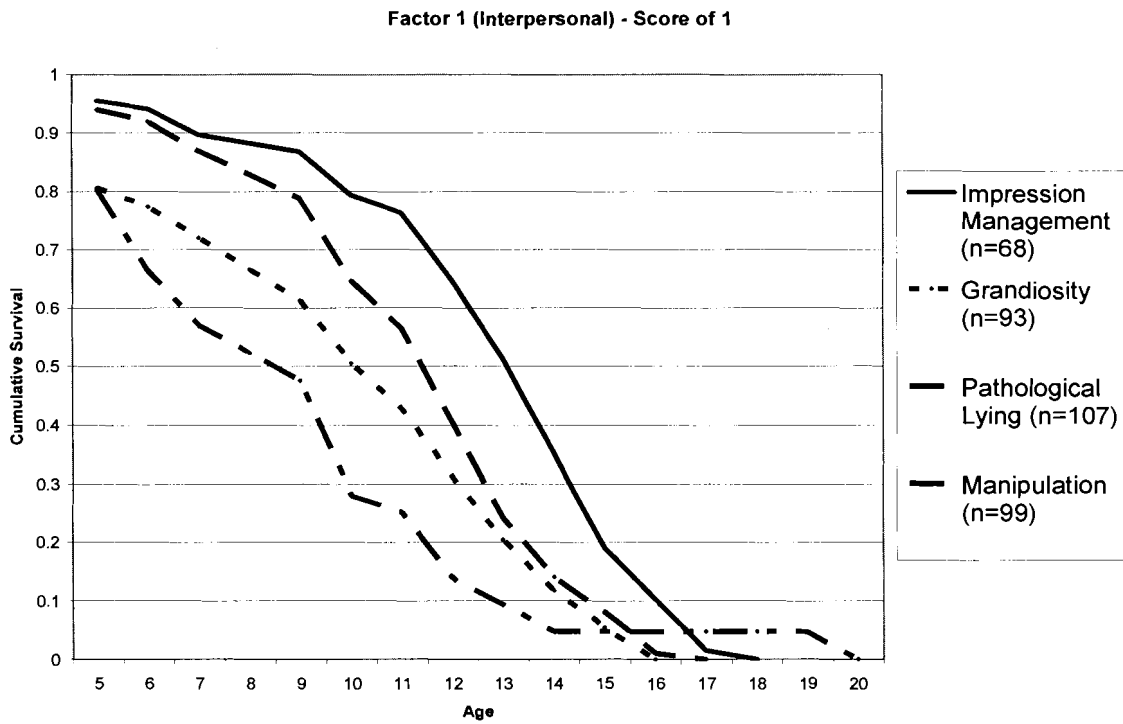
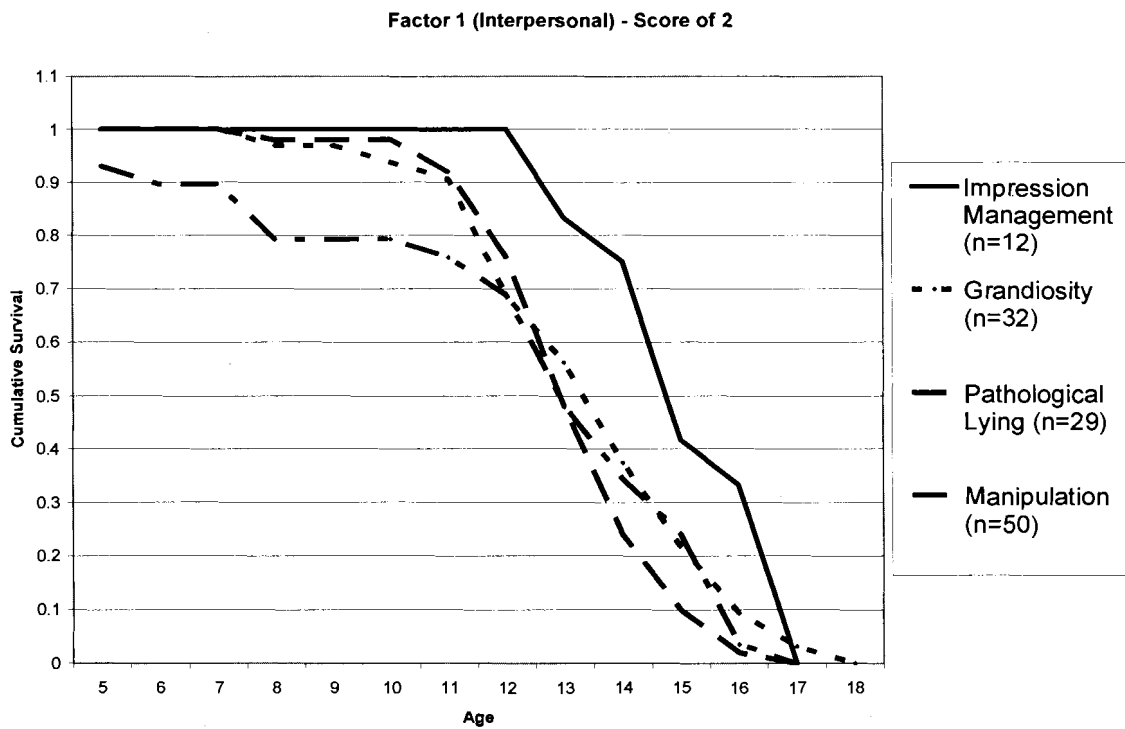


Figure 4. Survival Function for Scores of 2 on PCL:YV Factor 1 Traits.



For scores of 1 on affective traits (Figure 5), there were similar onset patterns for all traits. By age 5, 35% of the sample had scored a 1 on Callous/Lacks Empathy. By age 10, when 80% of youth had scored a 1 on Callous/Lacks Empathy, only 50% of youth had scored a 1 on Shallow Affect or Failure to Accept Responsibility. For scores of 2 on affective traits (Figure 6), there were similar onset patterns for Lacks Remorse and Callous/Lacks Empathy. By age 12, when 30% of the sample had scored a 2 on Lacks Remorse, Shallow Affect, and Callous/Lacks Empathy, very few youth had scored a 2 on Failure to Accept Responsibility.

Figure 5. Survival Function for Scores of 1 on PCL:YV Factor 2 Traits.

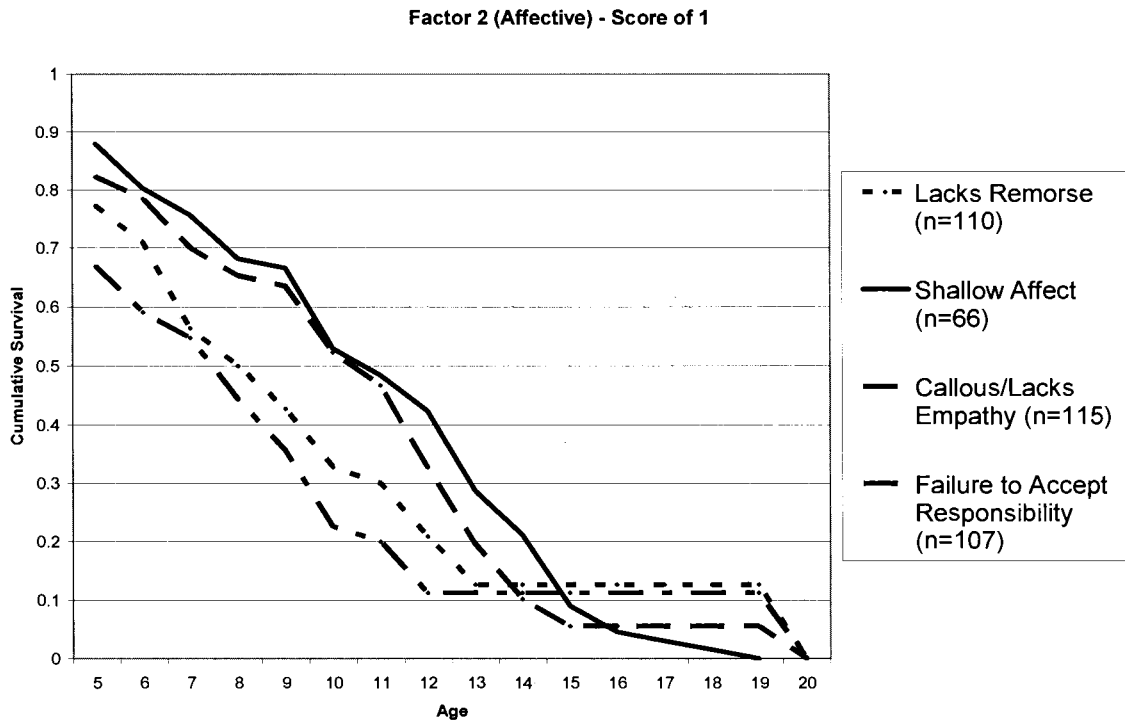
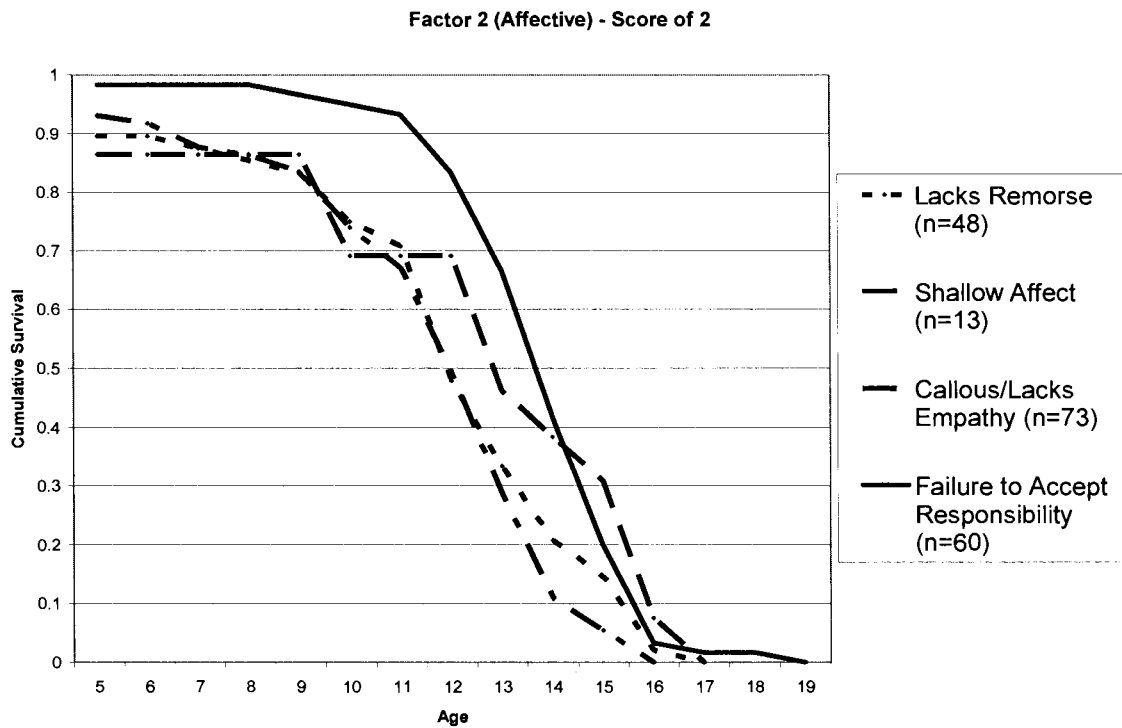


Figure 6. Survival Function for Scores of 2 on PCL:YV Factor 2 Traits.



For scores of 1 on behavioral traits (Figure 7), by age 11, when approximately 65 to 80% of the sample had scored a 2 on Stimulation Seeking, Impulsivity, and Irresponsibility, only 40% had scored a 2 on Parasitic Orientation and very few youth had scored a 2 on Lacks Goals. For scores of 2 on behavioral traits (Figure 8), there were similar onset patterns for all traits. By age 11, only 20% of youth had scored a 2 on any of the behavioral traits and very few had scored a 2 on Parasitic Orientation and Lacks Goals. By age 14, when 90% of youth had scored a 2 on Stimulation Seeking, only 60% had scored a 2 on Parasitic Orientation and only 30% had scored a 2 on Lacks Goals.

Figure 7. Survival Function for Scores of 1 on PCL:YV Factor 3 Traits.

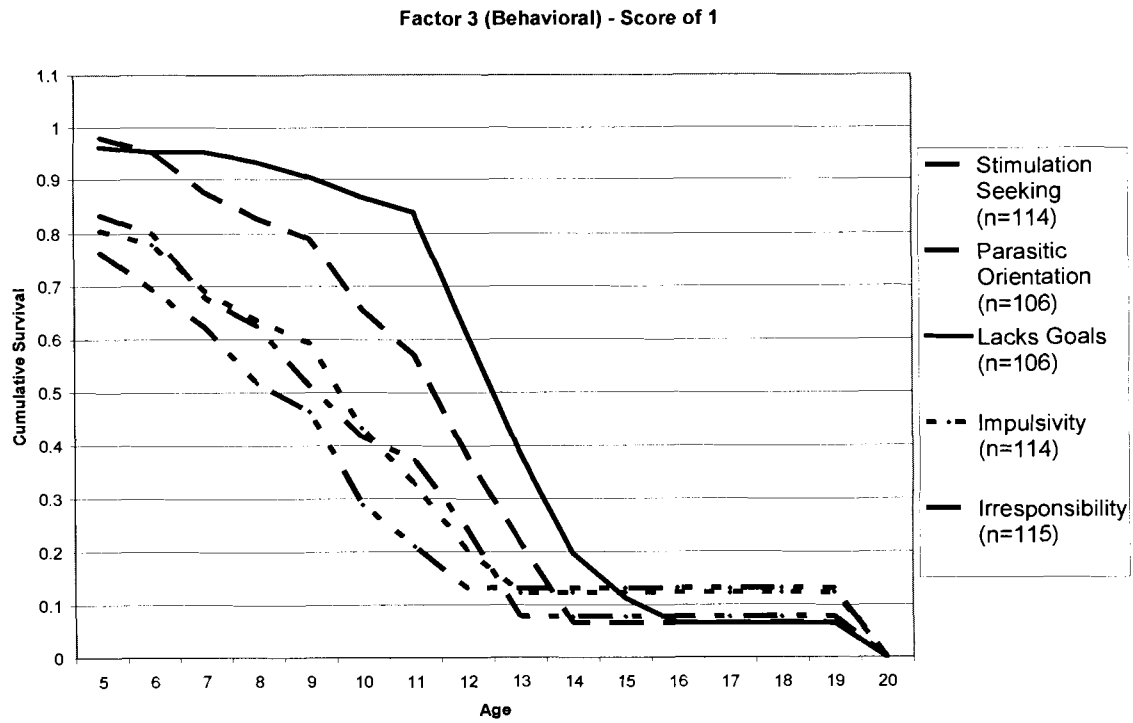
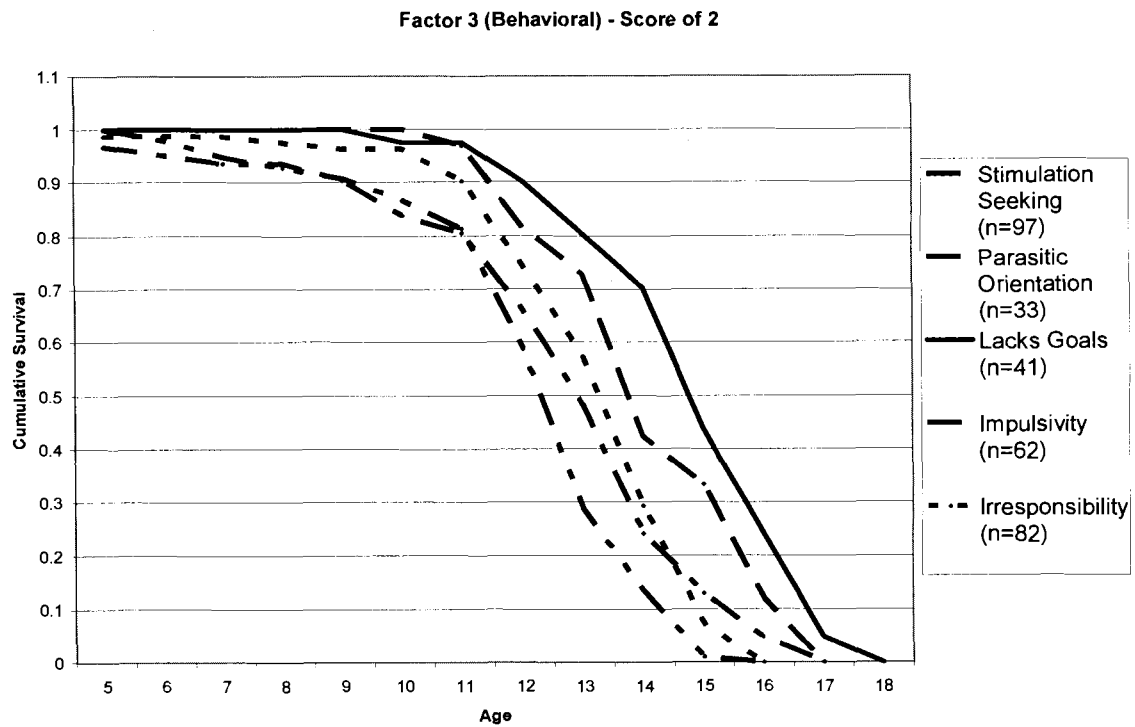


Figure 8. Survival Function for Scores of 2 on PCL:YV Factor 3 Traits.



For scores of 1 and 2 on antisocial traits (Figures 9 and 10), there were similar onset patterns for behavioral items (Poor Anger Control, Serious Behavior Problems) as well as for criminality items (Serious Criminal Behavior, Violations of Conditional Release, Criminal Versatility). It should be noted that the ages of onset of the criminality items was artificially restricted by the minimum legal age for arrest (age 12). By age 5, 40% of the sample had scored a 1 on Poor Anger Control and Serious Behavior Problems. Between the ages of 12 and 15, over 80% of the sample demonstrated the onset of a score of 1 or 2 on the criminality items.

Figure 9. Survival Function for Scores of 1 on PCL:YV Factor 4 Traits.

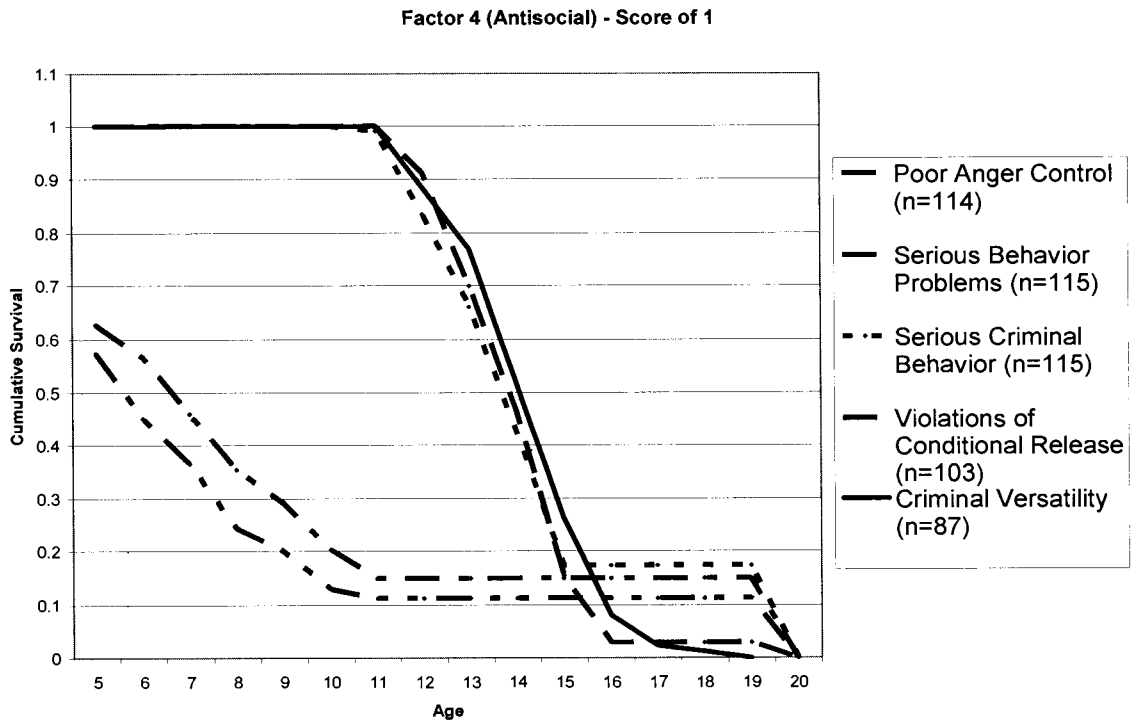
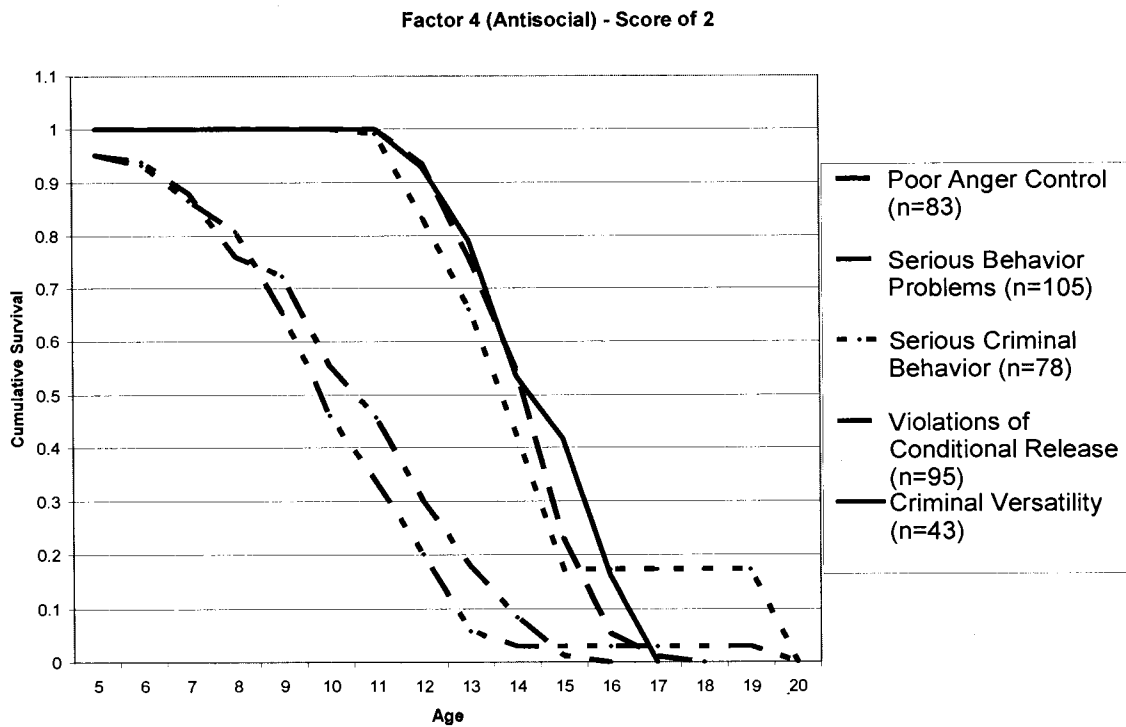


Figure 10. Survival Function for Scores of 2 on PCL:YV Factor 4 Traits.



Comparison of Ages of Onset of Psychopathic Traits Within Factors: Gamma Frailty Model

Survival analysis can be used to investigate the influence of categorical covariates (e.g. gender) on survival times. One assumption of this type of analysis is that the survival times for the different groups (e.g., males and females) are independent. One aim of this study was to investigate whether onset patterns were significantly different for traits within factors. However, because the ages of onset for traits within factors are likely to be correlated, a multivariate survival analysis must be employed in order to account for the dependence between trait onset times.

A gamma frailty model (Clayton, 1978; Hougaard, 1995; Oakes, 1982; Vaupel, Manton, & Stallard, 1979) was used to compare the onset of traits within factors. The gamma frailty model is essentially a standard Cox Regression model (Cox, 1972) with the addition of a *frailty* parameter – an individual level unobserved random effect which takes into account the correlation among the variables and acts multiplicatively on each individual's hazard rate. Thus, the frailty model takes into account the variance between survival times both within and between individuals. Conditional on the frailty, the survival times are assumed to be independent with a proportional hazard structure. It is also assumed that the frailty parameter follows a gamma distribution with a mean of one and unknown variance. The conditional hazard function is thus modeled as the product of (1) the frailty parameter, (2) a baseline hazard function, and (3) a function of the covariates. In the current study, there is one covariate corresponding to the various psychopathic traits (e.g., Factor 1 traits).

With the exception of comparing the onset of scores of 1 on Factor 2 (Affective) traits, the proportional hazards assumption was violated in the analyses of the other PCL:YV factors and thus the gamma frailty model was unable to be used. An examination of the correlations between onset ages for the four traits within Factor 2 indicated that they ranged from .22 to .55 (Table 8). The analysis revealed that the frailty term was significant and thus could not be omitted from the model, $\chi^2(61.8) = 155.8, p < .001$. Using log rank tests, significant differences were found between onset ages for the four Factor 2 traits. Specifically, compared to the onset of Failure to Accept Responsibility, the onsets of Lacks Remorse and Callous/Lacks Empathy were significantly earlier and the onset of Shallow Affect was significantly later (Table 9).

Table 8

Correlations Between Ages of Onset for First Appearance of Affective Traits

	Lacks Remorse	Shallow Affect	Callous/Lacks Empathy	Failure to Accept Responsibility
Lacks Remorse	-----	.24*	.54***	.41***
Shallow Affect		-----	.22	.32**
Callous/Lacks Empathy			-----	.33***
Failure to Accept Responsibility				-----

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

Table 9

Regression Parameters from Gamma Frailty Model

	<i>B</i>	S.E. (<i>B</i>)	<i>exp (B)</i>	95% C.I.	χ^2
Lacks Remorse	.49	.15	1.63	1.22 – 2.18	10.9***
Shallow Affect	-1.17	.17	.31	.22 – .43	47.3***
Callous/Lacks Empathy	.95	.15	2.59	1.93 – 3.49	40.0***

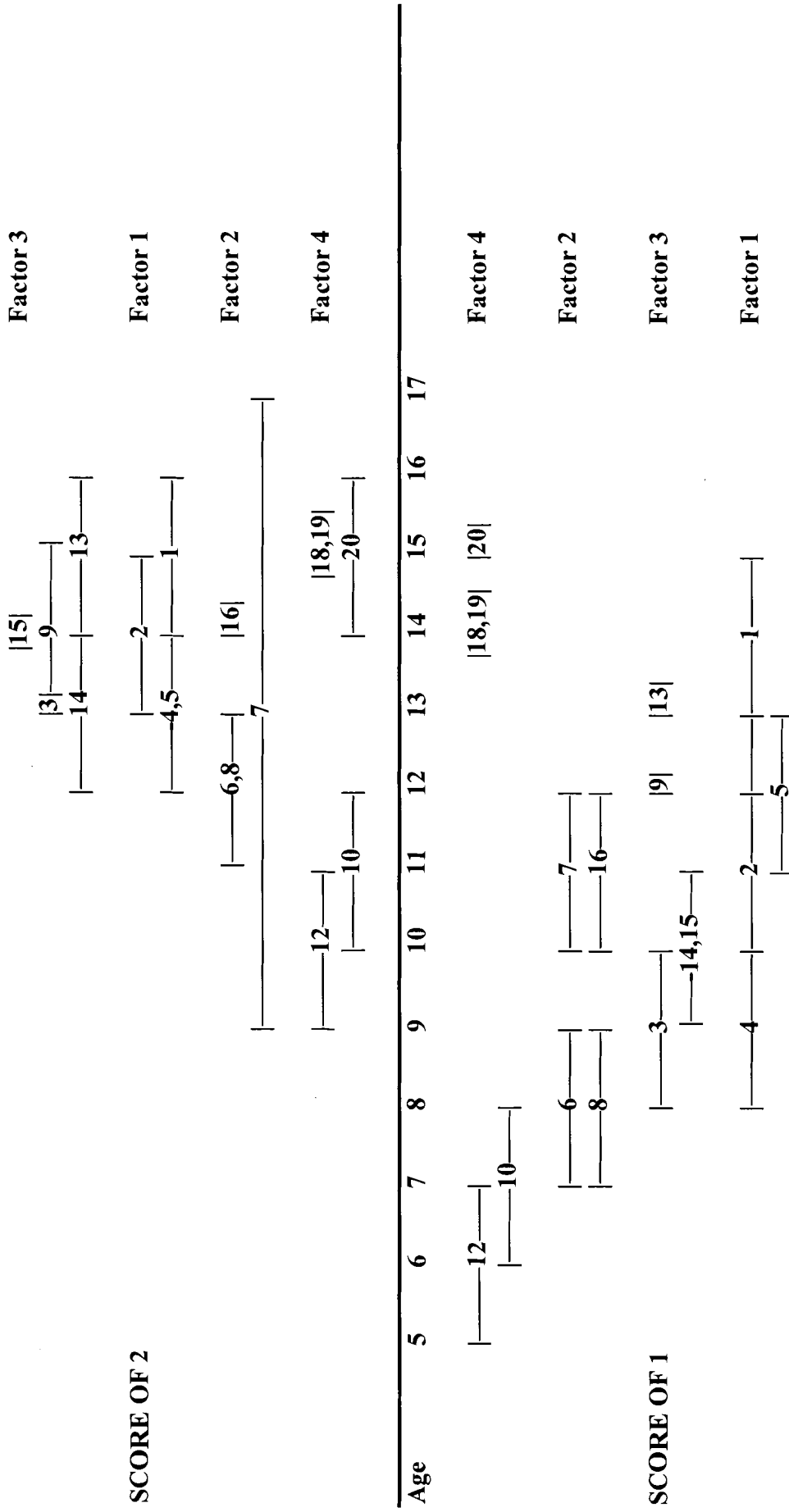
*** $p < .001$.

Another method to compare onset between individual traits involves plotting their ages of onset with confidence intervals (Figure 11). Non-overlapping confidence intervals may indicate differences in median ages of onset between traits. It should be noted, however, that this method does not take into account the correlations between onsets for the various traits.

Using this method, for scores of 1 on psychopathic traits, it appears that the earliest onset is for the behavioral components of the antisocial traits (Poor Anger Control, Serious Behavior Problems). Lacks Remorse and Callous/Lacks Empathy had earlier onset than Shallow Affect and Failure to Accept Responsibility. Stimulation Seeking had earlier onset than Parasitic Orientation and Lacks Goals. Finally, Pathological Lying and Grandiosity had earlier onset than Impression Management.

For scores of 2 on psychopathic traits, the behavioral components of the antisocial traits demonstrated earliest onset. Lacks Remorse and Callous/Lacks Empathy had earlier onset than Failure to Accept Responsibility, with Shallow Affect having a large confidence interval for the median age onset. Stimulation Seeking had earlier onset than Irresponsibility and Lacks Goals. Confidence intervals for the interpersonal traits were all overlapping.

Figure 11. Median Ages of Onset of Psychopathic Traits with Confidence Intervals.



Hazard Functions: Periods of Elevated Risk for Onset of Psychopathic Traits

An examination of the hazard functions for the various psychopathic traits allows for the identification of periods of elevated risk for the onset of traits across development (Figures 12 to 19). For scores of 1 on interpersonal traits (Figure 12), the ages of highest risk of first trait appearance were ages 10 and 12 for Pathological Lying, ages 13 and 16 for Manipulation, ages 12 to 16 for Grandiosity, and age 15 for Impression Management. Grandiosity also showed a relative peak in the hazard rate at age 5. For scores of 2 on interpersonal traits (Figure 13), the ages of highest risk of full trait manifestation were ages 13 and 14 for Manipulation, ages 12 and 14 for Grandiosity, ages 13 and 16 for Pathological Lying, and ages 15 and 17 for Impression Management. The hazard rate was zero for the full manifestation for Impression Management until age 12 and there was little risk for full manifestation of Manipulation until age 11 and of Grandiosity until age 12.

Figure 12. Hazard Function for Scores of 1 on PCL:YV Factor 1 Traits.

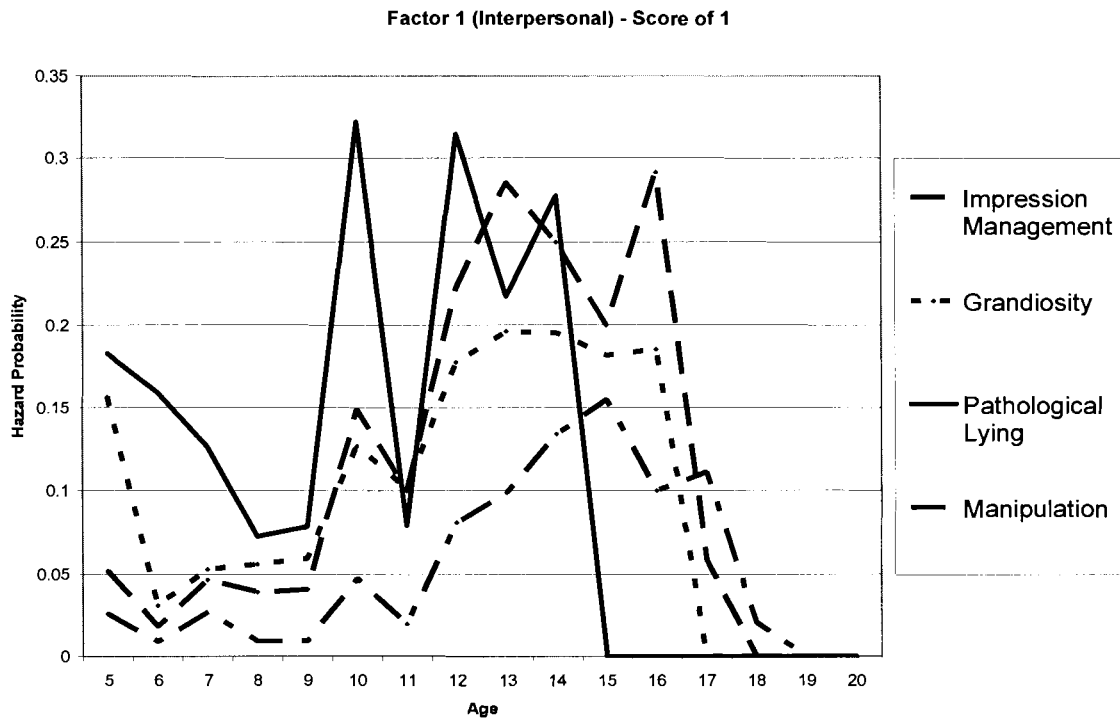
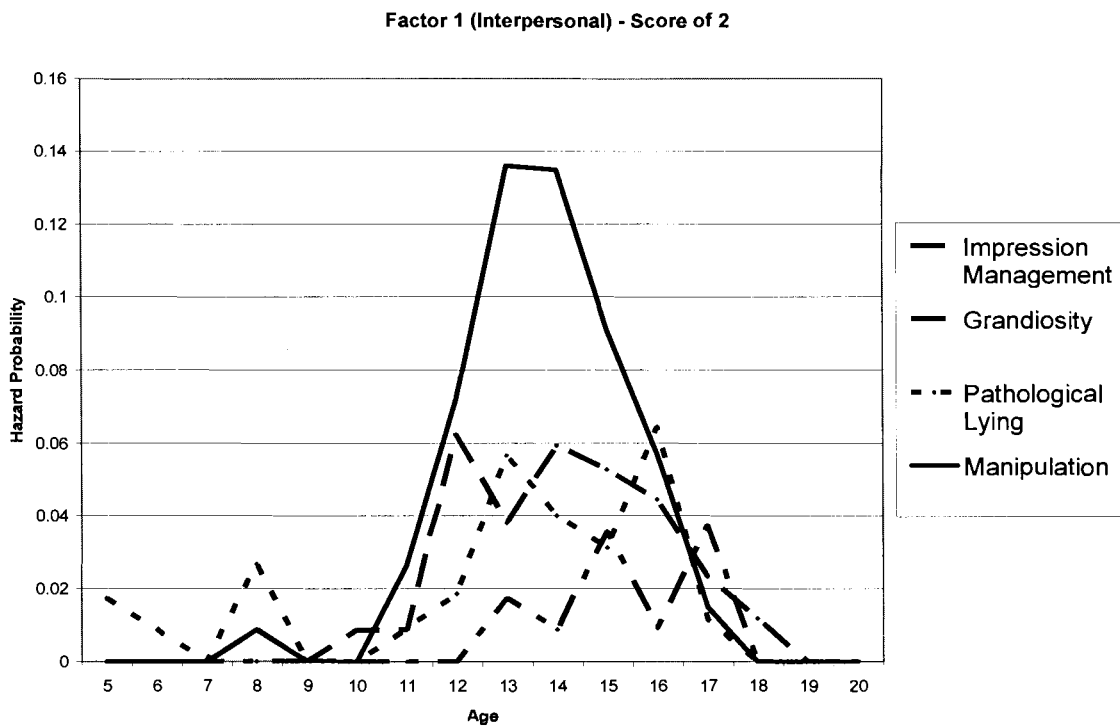


Figure 13. Hazard Function for Scores of 2 on PCL:YV Factor 1 Traits.



For scores of 1 on affective traits (Figure 14), the ages of highest risk of first trait appearance were ages 10 and 12 for Callous/Lacks Empathy, age 14 for Failure to Accept Responsibility, ages 13 and 14 for Lacks Remorse, and ages 13 to 14 for Shallow Affect. Callous/Lacks Empathy also showed a relative peak in the hazard rate at age 5. For scores of 2 on affective traits (Figure 15), the ages of highest risk of full trait manifestation were age 14 for Callous/Lacks Empathy, ages 14 to 16 for Failure to Accept Responsibility, and age 12 for Lacks Remorse. The highest risk for the full manifestation of Shallow Affect was age 6. There was little risk of full manifestation of Failure to Accept Responsibility until age 12.

Figure 14. Hazard Function for Scores of 1 on PCL:YV Factor 2 Traits.

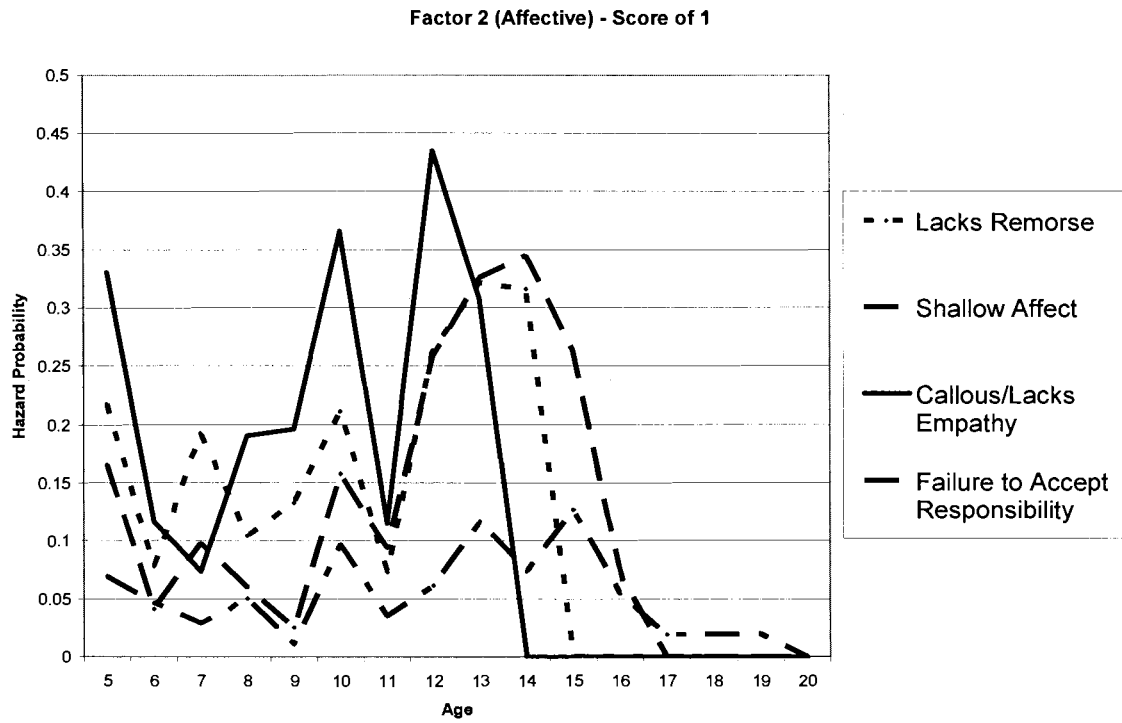
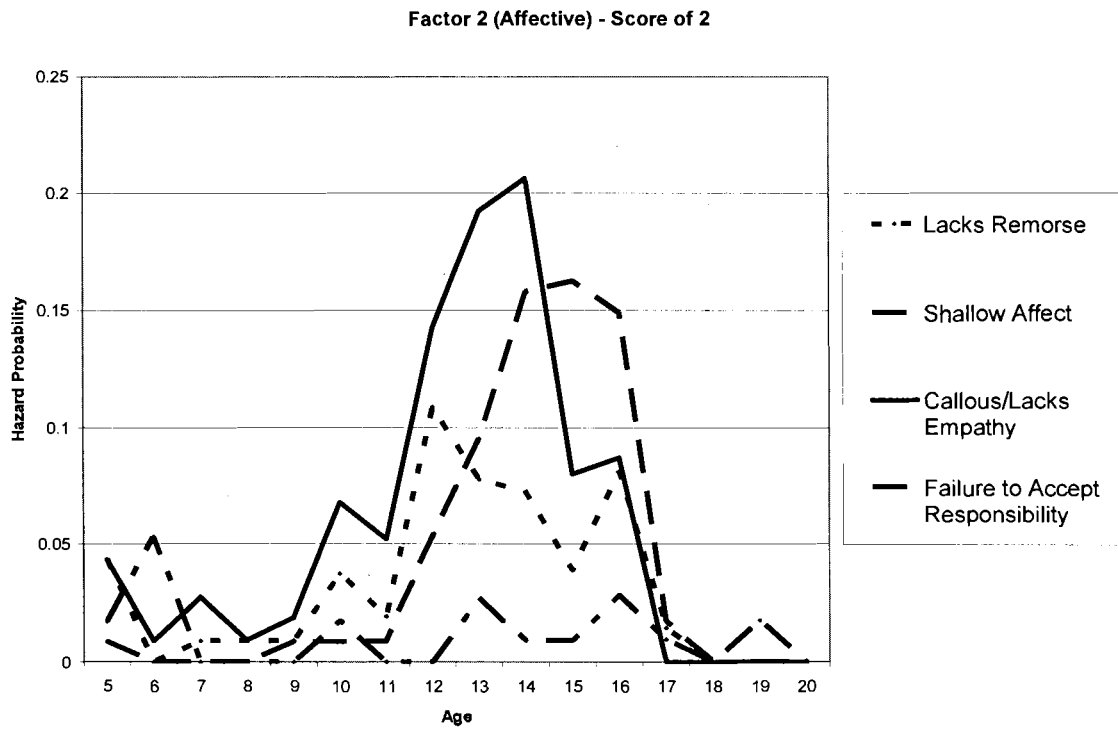


Figure 15. Hazard Function for Scores of 2 on PCL:YV Factor 2 Traits.



For scores of 1 on behavioral traits (Figure 16), the ages of highest risk of first trait appearance were age 13 for Irresponsibility, age 14 for Parasitic Orientation, age 14 for Lacks Goals, age 15 for Impulsivity, and ages 10 and 12 for Stimulation Seeking. For scores of 2 on behavioral traits (Figure 17), the ages of highest risk of full trait manifestation were ages 12 to 14 for Stimulation Seeking, age 15 for Irresponsibility, age 14 for Impulsivity, age 14 for Parasitic Orientation, and ages 15 to 17 for Lacks Goals. With the exception of Stimulation Seeking, the hazard rate was nearly zero for full trait manifestation of behavioral traits until age 12.

Figure 16. Hazard Function for Scores of 1 on PCL:YV Factor 3 Traits.

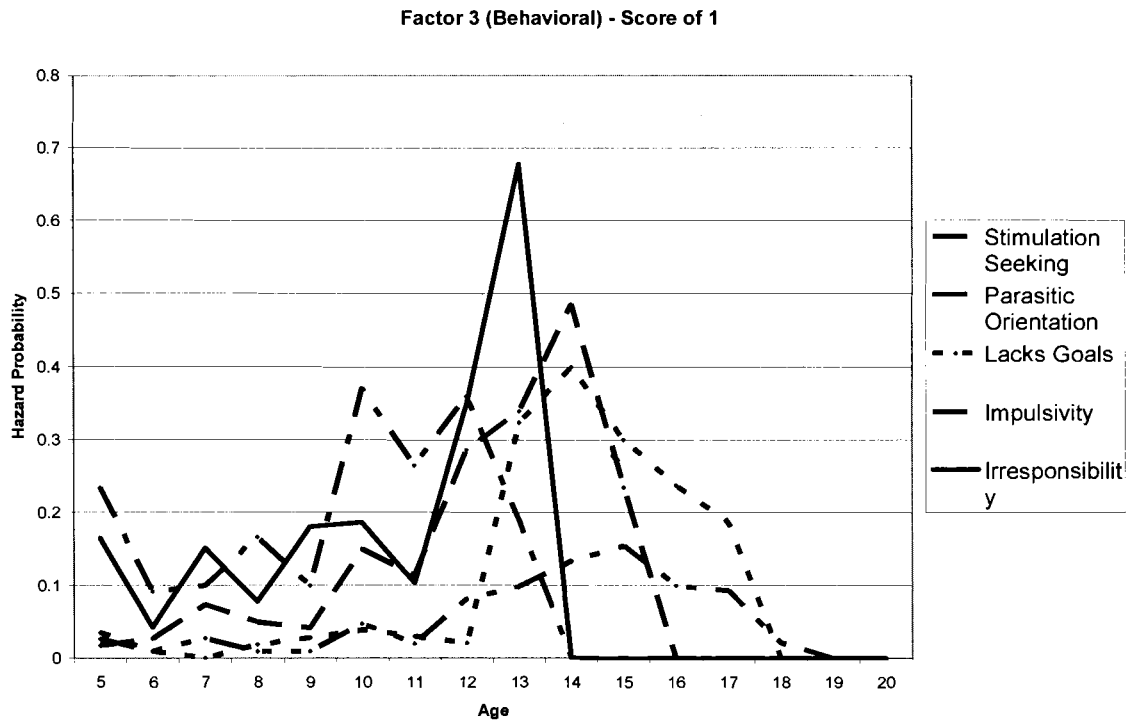
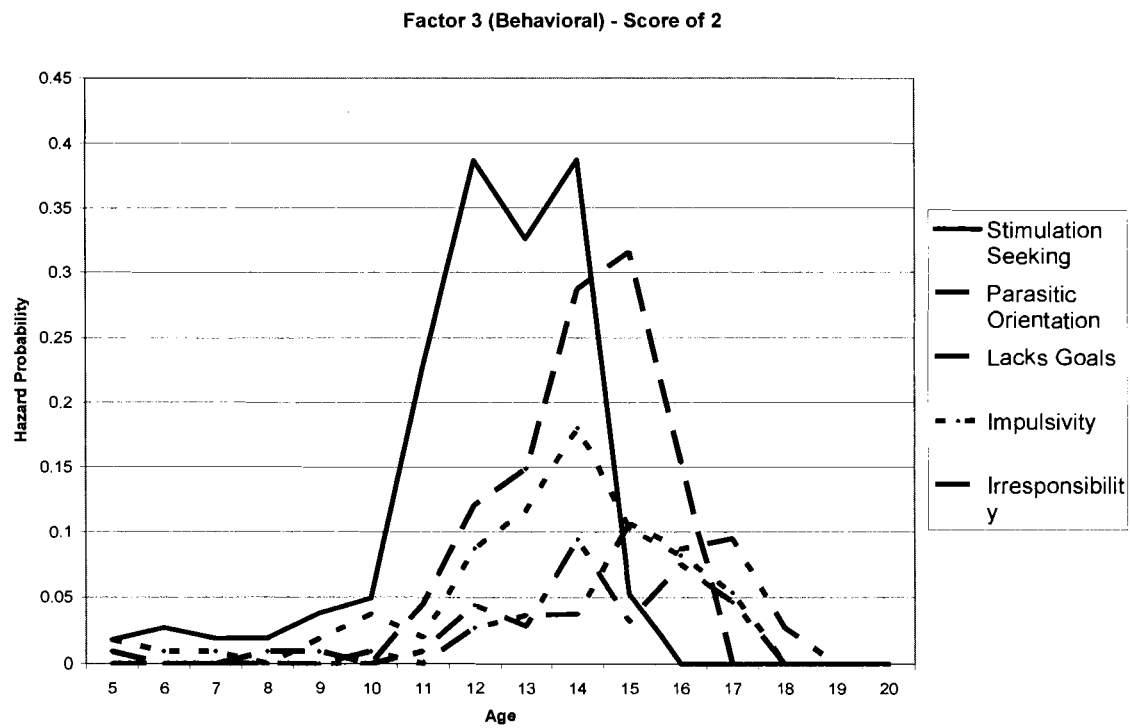


Figure 17. Hazard Function for Scores of 2 on PCL:YV Factor 3 Traits.



For scores of 1 on antisocial traits (Figure 18), the hazard rates for the behavioral components (Poor Anger Control, Serious Behavior Problems) peaked at age 5 with dramatic decreases after age 12. For scores of 2 on antisocial traits (Figure 19), the ages of highest risk were age 13 for Serious Behavior Problems and ages 12 to 15 for Poor Anger Control. The highest risk of developing scores of 1 and 2 on the criminality items (Serious Criminal Behavior, Violations of Conditional Release, Criminal Versatility) was between ages 15 and 16. It should be noted that the hazard probabilities for the criminality items are artificially restricted by the minimum legal age of arrest (age 12).

Figure 18. Hazard Function for Scores of 1 on PCL:YV Factor 4 Traits.

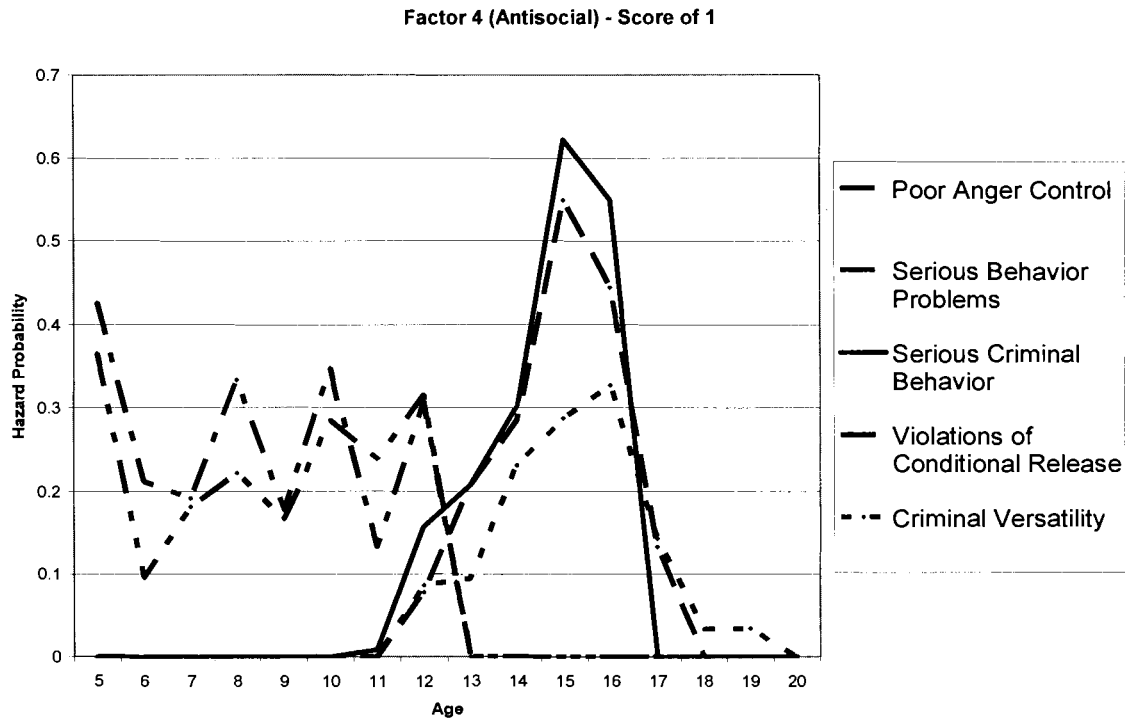
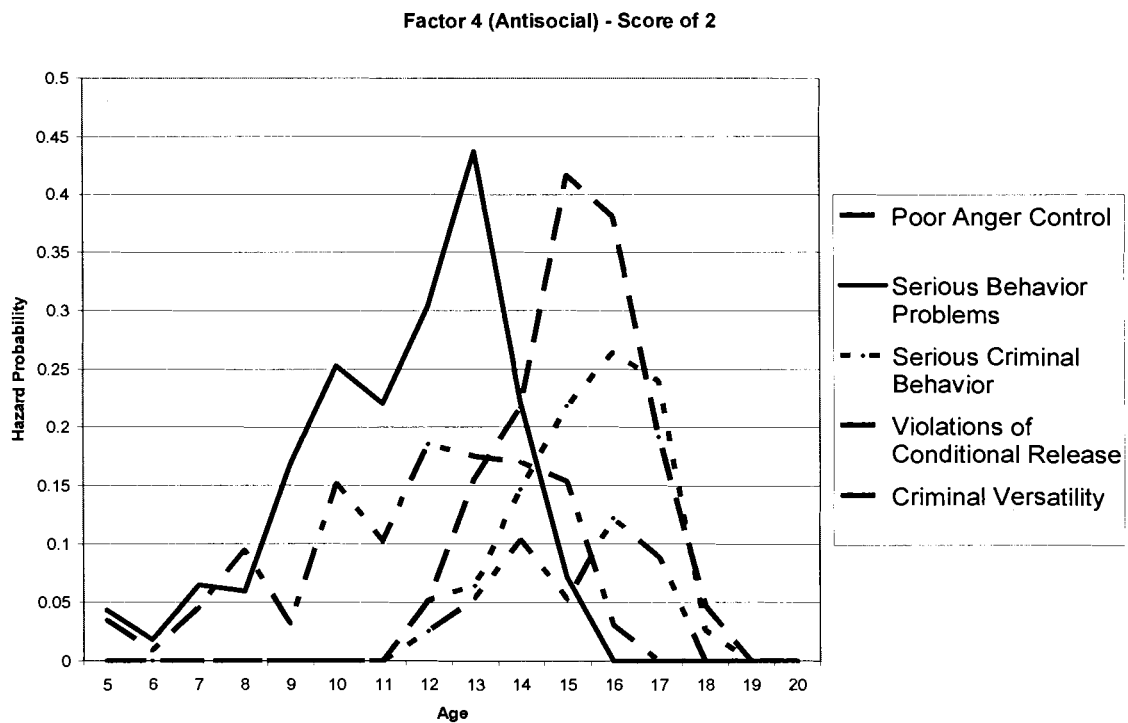


Figure 19. Hazard Function for Scores of 2 on PCL:YV Factor 4 Traits.



Discussion

The goal of the present study was to retrospectively investigate the age of onset of the interpersonal, affective, behavioral, and antisocial traits of psychopathy in sample of male young offenders. To this end, an augmented PCL:YV interview was designed to make ratings of the ages of onset of psychopathic traits. First, the utility of this method was evaluated by examining the interrater reliability of age of onset ratings. Second, survival analysis was employed to compute median ages of onset of the psychopathic traits and examine patterns of trait onset across development. Finally, developmental periods of high risk for the onset of psychopathic traits were identified.

Reliability of Age of Onset Ratings

Because age of onset ratings were based on subjective judgments, demonstrating that the ratings were made reliably is of great importance (Tinsley & Weiss, 1975). In the current study, interrater reliability estimates indicated that age of onset ratings were generally consistent across raters, with reliability in the fair to good range for most traits. Reliability was relatively higher for ratings of the age of first appearance of a trait (scores of 1) compared to ratings of the age of full trait manifestation (scores of 2). The lower reliability found for the onset of scores of 2 may reflect a genuine difficulty in rating the onset of full manifestation of some psychopathic traits using the PCL:YV item descriptions. Alternatively, this difference may be attributable to systematic variations in sample sizes for interrater reliability analyses (i.e., smaller sample sizes for score of 2 analyses). However, a comparison of items for which sample sizes are nearly equal for

reliability analyses for scores of 1 and 2 (e.g., Stimulation Seeking, Irresponsibility) indicates that reliability estimates for scores of 1 were consistently higher than those for scores of 2. Thus, it is likely that there is greater inconsistency in judging the onset of the full manifestation of psychopathic traits compared to judging the first appearance of the traits.

Comparing factors, it was evident that age of onset ratings for interpersonal traits demonstrated relatively low reliability. This may be due to item descriptions and measurement methods for these items being highly geared toward interview observations. Thus, raters may have had little guidance in terms of capturing the existence and timing of early manifestations of interpersonal traits. There may also have been less file information available for interpersonal traits.

Ratings of the age of onset of behavioral traits were clearly less reliable for scores of 2 compared to scores of 1. One potential reason for this finding is that the measurement of behavioral traits relies heavily on the documentation of explicit behaviors. Thus, it may be easier to judge when these behaviors began than to judge the age by which an accumulation of these behaviors would be considered full manifestation of a trait. Further, manifestations of behavioral traits at early ages may be more overt and easier to observe in comparison to later ages at which youth with more developed verbal and social skills may also demonstrate these traits but in more subtle ways.

Interestingly, age of onset ratings for affective traits consistently demonstrated reliability comparable to or better than the average reliability of all traits. This finding is perhaps surprising given that the onset of the *absence* of a characteristic (e.g., Lack of Remorse) might be thought of as more difficult to measure than the onset of the *presence*

of a characteristic (e.g., Pathological Lying). One possible reason for this finding is that an affective deficit, such as lacking remorse, may be viewed as more pathological at younger ages and thus be more likely to be documented across settings compared to an interpersonal trait, such as lying, which may be viewed as more normative at young ages.

The current findings can be compared to the small literature on rating the onset of various stages of other mental disorders. For example, it is believed that some disorders have a *prodrome* or early symptoms and signs of an illness that precede the manifestation of the fully developed illness (Yung & McGorry, 1996). For example, the prodromal phase of schizophrenia may be thought of as somewhat analogous to the progression from scores of 1 to scores of 2 on psychopathic traits; some features of the disorder may be present, but defining symptoms have yet to fully manifest. Research has demonstrated good to excellent reliability for determining the onset of the prodrome and first psychotic episode in schizophrenia (Beiser, Erickson, & Fleming, 1993; Hafner et al., 1992; Perkins et al., 2000; Singh et al., 2005) as well as the onset of dementia (Sano et al., 1995) and the “age at shift” from questionable to probable Alzheimer’s disease (Small, Kuhl, Fujikawa, & Ashford, 1988). The consistency of the current reliability findings with those for other disorders is promising in terms of using this protocol to investigate the onset and developmental course of psychopathy.

Onset of Psychopathic Traits in Youth

Survival analysis was used to compute the median ages of onset of first trait appearance (score of 1) and of full trait manifestation (score of 2) for each psychopathic trait. On average, traits first appeared by age 11 and fully manifested by age 13.5. For first trait appearance, affective traits appeared first (age 9.5), followed by behavioral

traits (age 10.8) and interpersonal traits (age 11.5). For full trait manifestation, a similar pattern emerged, with affective traits fully manifesting first (age 12.8), followed by behavioral and interpersonal traits (age 13.8). In terms of individual traits, the affective traits of Lacks Remorse and Callous/Lacks Empathy appeared first and the traits of Impression Management and Lacks Goals appeared latest. Due to concerns of low interrater reliability in rating the age of onset of scores of 2 on several traits, the following discussion will focus on the age of onset of scores of 1 on psychopathic traits.

Psychopathic Traits Demonstrating Earliest Onset

Across factors, the average age of onset was earliest for affective traits and, for individual traits, those reflecting a lack of remorse and empathy were the first to appear developmentally. On average, affective deficits first appeared by age 9.5. Twenty-five percent of youth demonstrated a lack of empathy and lack of remorse by ages 5 and 6, respectively. By age 8, 50% of the sample demonstrated the first appearance of these traits. Additionally, multivariate survival analyses indicated that the traits of lacking remorse and empathy appeared significantly earlier in development compared to the other affective traits of shallow affect and failure to accept responsibility.

The finding that the affective deficits of psychopathy, especially a lack of remorse and empathy, are demonstrating earliest onset has important theoretical and practical implications. If these traits appear first in the development of psychopathy, they may represent the core of the disorder and potentially serve to set in motion the development and/or maintenance of other psychopathic traits. For example, a child who does not have an appreciation of how his or her behaviors affect others may never develop the impetus to act responsibly when family or societal expectations increase at later ages. Further, a

child finding social advantage through experimentation with manipulative or parasitic behaviors may be more likely to continue using these strategies if he or she has little capacity to feel remorse or victim empathy. From a clinical perspective, the early identification and successful treatment of deficits in empathy and remorse would be a high priority for practitioners in the attempt to intervene with children at risk for future behavior problems.

Genetic and Environmental Influences on the Affective Traits of Psychopathy

The finding that affective traits of psychopathy appear first developmentally is consistent with the theoretical assertion that that a deficient affective experience is part of the core personality constellation of psychopathy (Cleckley, 1976). Affective traits may have appeared earliest due to the influence of genetic or early environmental factors (Blair, Peschardt, Budhani, Mitchell, & Pine, 2006; Saltaris, 2002). Recent evidence from behavior genetics studies suggests that psychopathic traits may be under strong genetic control (for a meta-analytic review, see Waldman & Rhee, 2006). Specifically, strong genetic influences have been found for various affective traits of psychopathy, including detachment (Taylor, Loney, Bobadilla, Iacono, & McGue, 2003), coldheartedness and blame externalization (Blonigen, Carlson, Kreuger, & Patrick, 2003), and callousness (Livesley, Jang, Jackson, & Vernon, 1993). Viding, Blair, Moffitt, and Plomin (2005) also found moderate to high heritability for the callous-unemotional traits of psychopathy in a child sample.

A variety of environmental factors, such as quality of parenting, attachment, and child abuse, have also been implicated in the development of the affective traits of psychopathy. Family factors such as parental rejection, parental absence, parental

antisociality, erratic or harsh discipline, and poor parental supervision have been deemed important in the development of psychopathy both theoretically (Lykken, 1995; McCord & McCord, 1964) and empirically in adults (Farrington, 2006; Harris, Rice, & Lalumiere, 2001; Ishikawa, Raine, Lencz, Bihrlé, & Lacasse, 2001; McCord, 2001) and adolescents (Forth & Burke, 1998). Interestingly, quality of parenting is predictive of the stability of psychopathic traits in children (Frick et al., 2003). However, children scoring highly on the callous-unemotional dimension of psychopathy exhibit a significant number of conduct problems, regardless of the quality of parenting (Wootton, Frick, Shelton, & Silverthorn, 1997; see also Oxford, Cavell, & Hughes, 2003).

In his theory of attachment, Bowlby (1951) postulated that, if a child suffers a prolonged period of maternal deprivation during the first 5 years of life, he or she would suffer irreversible negative effects, including becoming a cold “affectionless character” and a delinquent. Lack of attachment has been linked to psychopathy in adolescents via self-report (Kosson et al., 2002) and as measured by the Rorschach (Meloy & Gacono, 1998; Smith et al., 1997). Additionally, Saltaris (2002) has suggested that attachment can be conceptualized as an early precursor to the hallmark emotional detachment of psychopaths, such that children who experience disruptions in their early bonding experiences fail to exhibit moral and emotional commitment to others throughout childhood and into adulthood.

Several theorists and researchers have emphasized a relationship between psychopathy and child abuse (e.g., Porter, 1996). Psychopathic traits have been linked to a history of serious childhood maltreatment, including physical abuse and neglect, both in samples of adults (Farrington, 2006; Forth, 1995; Forth & Tobin, 1995; Koivisto &

Haapasalo, 1996; Lang, af Klinteberg, & Alm, 2002; Marshall & Cooke, 1999; Patrick, Zempolich, & Levenston, 1997; Weiler & Widom, 1996) and adolescent offenders (Campbell et al., 2004; O'Neill et al., 2003a).

A variety of genetic and early environmental factors potentially influence the relatively earlier onset of affective traits in psychopathy. However, other psychopathic traits, especially those related to temperament, are likely to be under strong genetic influence (Rhee & Waldman, 2006). It is also important to keep in mind the developmental concept of *multifinality* which states that the same developmental process can lead to diverse outcomes (Cicchetti & Rogosch, 1996), suggesting that several of the potential environmental precursors to psychopathy may be implicated in the development of other childhood psychopathology. Additionally, recent research has emphasized the important role of gene-environment interplay in the development of conduct problems (Rutter, Moffitt, & Caspi, 2006). Thus, it remains unclear what early influences may be implicated specifically in the development of a deficient affective experience in psychopathy.

A Developmental Perspective on Psychopathy and a Lack of Remorse and Empathy

Theoretical discussions and empirical investigations of the onset of affective deficits in psychopathy, such as lacking empathy and remorse, should be guided by the general literature on emotional development. The following section briefly reviews normative stages in the early development of empathy and remorse and highlights several theories of moral development that have been investigated in relation to psychopathic traits and could thus be useful in the future investigation of the development of affective deficits in psychopathy.

Research indicates that guilt and empathy develop early on and tend to increase with age in the early years (Eisenberg, 2000; Hoffman, 2000). Precursory signs of empathy have been identified in infants as young as two days of age (Dondi, Simion, & Caltran, 1999), with two and three year old children reacting with agitation or sympathy to the distress of others (Zahn-Waxler & Radke-Yarrow, 1990; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992; Zahn-Waxler, Radke-Yarrow, & King, 1983). Guilt is thought to emerge around the age of two once children are able to differentiate the internal states of themselves and others and understand the difference between right and wrong (Barrett, 1998), with increases in guilt and remorse reported from ages two to four (Kochanska, DeVet, Goldman, Murray, & Putnam, 1994; Kochanska, Gross, Lin, & Nichols, 2002; Stipek, Gralinski, & Kopp, 1990).

There are several theories outlining normative moral development in childhood and adolescence that may offer insight into how and when psychopathic deficits in remorse and empathy may occur. First, Kohlberg (1984) proposed a theory of moral development in which individuals pass from concrete to abstract stages in the type of reasoning they use to make moral judgments. Strong correlations between age and moral judgment maturity have been documented (Colby, Kohlberg, Gibbs, & Leiberman, 1983). Using Kohlberg's moral judgment interview, early research found that psychopathic youth had lower levels of moral reasoning compared to non-psychopathic delinquent and normal youth (Trevethan & Walker, 1989; see also Chandler & Moran, 1990). More recent research by Blair and colleagues (Blair, 1997; Blair, Monson, & Frederickson, 2001; Fisher & Blair, 1998) has found that psychopathic children are more impaired in

their moral reasoning (e.g., less able to distinguish between moral and conventional transgressions) compared to their non-psychopathic counterparts.

Second, Selman (1980) has proposed a theory of social perspective taking in which skills develop from the recognition of mutual views to the understanding of larger societal influences on perspectives. Age-related changes in social perspective taking occur until about age 16 (Cauffman & Steinberg, 2000; Steinberg & Cauffman, 1996). Empathic perspective taking deficits have been related to psychopathy in adult methadone maintenance patients (Bovasso, Alterman, Cacciola, & Rutherford, 2002) and Skeem and Cauffman (2003) found a significant negative relationship between the affective deficits of psychopathy and a measure of social perspective taking in serious adolescent offenders.

Third, cognitive theorists suggest that the key to understanding moral development is to examine how a child interprets and responds to the behavior of others during peer interactions. For example, Dodge and colleagues (Crick & Dodge, 1996; Dodge & Pettit, 2003) assert that aggressive children have a social information processing deficit such that they often see hostile intent in ambiguous situations. This tendency for a *hostile attribution bias* has been related to psychopathy in adult samples (Seager, 2005; Serin, 1991; Vitale, Newman, Serin, Bolt, 2005; see also Blackburn & Lee-Evans, 1985; Doninger & Kosson, 2001). Pardini, Lochman, and Frick (2003) also found that callous-unemotional traits were related to increased expectations and values associated with the positive consequences of aggression and decreased regard for the negative consequences of deviant behavior in adjudicated youth.

Fourth, Kochanska (1993, 1997) has argued that early temperament is key to conscience development (see also Rothbart, Ahadi, & Hershey, 1994). Specifically, a lack of fearful inhibitions and emotional arousal are related to the development of empathy, guilt, and shame, with these temperamental styles moderating the impact of socialization in childhood (Kochanska, 1995). The affective deficits in psychopathy have been theoretically linked to a unique temperamental style (e.g., Saltaris, 2002). Frick and colleagues (Frick, 1998; Frick & Morris, 2004) have proposed that a lack of fearful inhibitions in psychopathic children precludes the normal development of empathy and guilt, thus making these children more difficult to socialize. Accordingly, temperamental fearlessness has been related to callous-unemotional traits in adolescents (Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999; Pardini et al., 2003). Further, conduct disordered children with callous-unemotional traits are less responsive to typical parental socialization practices than other children with behavior problems (Oxford et al., 2003; Wootton et al., 1997).

Blair and colleagues (Blair, 1995; Blair, Colledge, Murray, & Mitchell, 2001; Blair, Jones, Clark, & Smith, 1997) proposed that an inability to experience negative emotional arousal in reaction to the distress of others disrupts the development of empathy and eventual moral socialization in psychopathic children. Accordingly, children with psychopathic tendencies are less responsive to distress cues and threatening stimuli (Blair, 1999; see also Kimonis, Frick, Fazekas, & Loney, 2004) and less able to recognize expressions of sadness in the faces and vocalizations of other children (Blair, Budhani, Colledge, & Scott, 2005; Blair & Coles, 2000; Blair et al., 2001; Stevens, Charman, & Blair, 2001).

Finally, another area that may be useful in elucidating the onset and development of the affective deficits seen in psychopathy is that of theory of mind – the ability to represent the mental states of others (Leslie, 1987). Theory of mind abilities have been conceptualized as necessary prerequisites for the experience of emotional empathy (Feshbach, 1978). These skills are typically achieved around four years of age (Wellman, Cross, & Watson, 2001; Wimmer & Perner, 1983) and age-related trends have been found (Das & Babu, 2004; Mitchell, 2003). Theorists have linked the affective deficits in psychopathy to theory of mind abilities (e.g., Mealey, 1995). However, no relationship has emerged between theory of mind measures and psychopathy (Blair, 2005; Blair et al., 1996; Dolan & Fullam, 2004; Richell et al., 2003; Widom, 1978) and no studies have investigated theory of mind in children or adolescents with psychopathic traits.

Psychopathic Traits Demonstrating Later Onset

The ages of onset for the traits of Impression Management and Lacks Goals occurred latest in development. On average, these traits first appeared by ages 13 or 14. The developmental patterns of onset also indicated that, by age 12, only 35% and 40% of youth demonstrated the first appearance of Impression Management and Lacks Goals, respectively. Further, by age 12, no youth showed full manifestation of Impression Management.

The finding that the traits of Impression Management and Lacks Goals are not appearing until relatively later ages has important theoretical and measurement implications. As a direct downward extension of the PCL-R, the PCL:YV assumes that adult psychopathic traits can be present in individuals as young as age 12 and that these traits manifest similarly in adult and youth samples. However, given the requisite social

and cognitive skills for several characteristic features of adult psychopathy, it may be that traits such as Impression Management and Lacks Goals do not, for developmental reasons, crystallize or fully manifest until later ages. If it is the case that these psychopathic traits simply cannot exist in earlier developmental stages, it would make little sense to attempt to measure them in less developmentally mature samples for whom they would be inapplicable. Alternatively, if it is the case that psychopathic traits such as Impression Management and Lacks Goals do in fact exist at younger ages, the identification of their early manifestations may be precluded by age-inappropriate and developmentally uninformed item descriptions. In other words, modifications of item descriptions guided by the developmental literature would be needed in order for the PCL:YV to capture early manifestations of these traits.

Unfortunately, given the contemporary measurement of psychopathic traits in youth using the PCL:YV, it is difficult to discern the meaning of a score of 0 on a PCL:YV item in a young adolescent. A score of 0 may indicate (1) that the individual does not possess a psychopathic characteristic that manifests similarly in adults and adolescents; (2) that the trait appears to be absent because it cannot develop until later ages and is thus inapplicable to the individual; or (3) the trait is indeed present in the individual but is undetectable because it is manifesting in a manner that is qualitatively distinct from its PCL:YV item description.

A Developmental Perspective on Psychopathy, Impression Management, and Lacks Goals

The general developmental psychology literature offers insight into the normative development of skills such as self-presentation and time perspective that may influence

the expression of psychopathic traits such as Impression Management and Lacks Goals. As well, this literature may offer insight into how and when the development of maladaptive variants of self-presentation and time perspective abilities may occur. The following section reviews the normative development of self-presentation and time perspective skills as well as investigations of psychopathy, Impression Management, and Lacks Goals in adult and adolescent samples.

An understanding of the development of impression management skills can be informed by the developmental literature on self-presentation – the selection of behaviors in order to convey a particular image of the self to an audience (Goffman, 1959; Schlenker, 1980). Children as young as four years of age are responsive to social evaluation in domains where they are highly motivated to make good impressions (Banerjee & Lintern, 2000; Bennett, 1990; Hatch, 1987). Between the ages of 6 and 11, children are increasingly capable of providing interpersonal explanations for self-presentational acts (Banerjee & Yuill, 1999), regulating their choices of self-descriptions in accordance with audience preferences (Banerjee, 2002), managing the impressions they make when reporting sibling conflicts (Ross, Smith, Spielmacher, & Recchia, 2004), and appreciating the role that social desirability plays in self-presentational processes (Heyman & Legare, 2005). Children aged 8 to 11 understand the nature of actions, such as showing off, in terms of interpersonal processes (Bennett & Yeeles, 1990a, 1990b) and demonstrate developmental increases in selective self-presentation skills, such as tailoring self-descriptions in order to accomplish an interpersonal goal (Aloise-Young, 1993).

The ability to modify self-presentations generally increases from late adolescence into adulthood (Allen, 1986). Normative adolescents use impression management techniques when conveying information to parents about their whereabouts and activities (Marshall, Tilton-Weaver, & Bosdet, 2005), use various self-presentational strategies while engaging in internet-based identity experiments (Valkenburg, Schouten, & Peter, 2005), and actively select the quality of feedback they wish to receive from others (Cassidy, Ziv, Mehta, & Feeney, 2003).

There are few studies that have investigated impression management skills in relation to psychopathy. Gustafson and colleagues (Gustafson, 1995; Gustafson & Ritzer, 1995) have linked psychopathy to a personality profile characterized by aberrant self-promotion. Kosson and colleagues (Kosson et al., 2002; Kosson, Gacono, & Bodholdt, 2000; Kosson, Steuerwald, Forth, & Kirkhart, 1997) have emphasized the importance of attending to interpersonal features of psychopathy, including a variety impression management strategies, noting that the frequency of these interpersonal traits are positively correlated with age.

Few relationships have been found between psychopathy and socially desirable responding patterns on psychological measures (for a review, see Hare, Forth, & Hart, 1989). In fact, in incarcerated adults, psychopathy and scores on social desirability and impression management scales typically demonstrate no relationship (Looman, Abracen, Maillet, & DiFazio, 1998; Molto, Poy, & Torrubia, 2000) or an inverse relationship (Poythress, Edens, & Lilienfeld, 1998; Seto, Khattar, Lalumiere, & Quinsey, 1997; Stalenheim & von Knorring, 1998). On the contrary, positive relationships between psychopathic traits and social desirability have been found in adolescent offenders

(Rogers et al., 2002) and undergraduates (Edens, Buffington, Tomicic, & Riley, 2001; Zagon & Jackson, 1994).

The developmental literature offers insight into when youth may have the cognitive capacity to think realistically about future choices. According to Piaget (1954), children in the early years of school gradually develop a sense of the past and future. McInerney (2004) emphasizes the importance of examining the onset of the ability of individuals to articulate a future, noting that most individuals have a reasonably well-developed sense of the future by mid-adolescence. Children and younger adolescents, in contrast, exhibit significant deficits with respect to their ability to delay short-term gratification and appreciate the long-term consequences of a particular course of action (Cauffman & Steinberg, 2000; Scott, Reppucci, & Woolard, 1995; Steinberg & Cauffman, 1996)

Between childhood and young adulthood, individuals become more future-oriented (Greene, 1986; Nurmi, 1991). Until age 11, children are involved in a “fantasy period” regarding career decisions, during which time choices are made and discarded without regard for skills, abilities, or available job opportunities; rather, choices are made solely on the basis of what sounds appealing (Ginzberg, 1972). Garner (1990) notes that cognitive self-regulation, the process of continuously monitoring progress toward a goal, checking outcomes, and redirecting unsuccessful efforts, does not crystallize until after age 12. In later adolescence, the level of realism in time perspective increases with maturity (Verstraeten, 1980). Other research on future time perspective indicates that that this skill develops in preadolescence (Lessing, 1972), into adolescence (Monks, 1968; Tismer, 1985) through adulthood (Bouffard, Bastin, & Lapierre, 1996; Fingerman &

Perlmutter, 1995; Lens & Gailly, 1980) and even into old age (Breesch-Grommen & Nederlands, 1975).

Interestingly, early research indicated that psychopathy was negatively related to performance on temporal perception tasks (Hess, 1973). In undergraduates, psychopathic traits have been negatively related to time perspective (Hafner, Begue, Choma, & Dempsey, 2005) and goal engagement (Ross & Rausch, 2001) as well as thoughts and preoccupations about the future (Lilienfeld, Hess, & Rowland, 1996). No research has examined measures of future time perspective in children or adolescents with psychopathic traits.

In summary, it is clear that self-presentation and time perspective skills involve complex social and cognitive processes that increase with age. Such skills begin to develop in young childhood where it is possible that early indicators of Impression Management and Lacks Goals could exist. However, the normative developmental progressions of these skills indicate that this may not be the case. For example, young children likely do not possess the level of psychosocial skill required to make advantageous use of the Impression Management style as it is conceptualized in psychopathy. Further, until the cognitive capacities for independent and realistic planning and goal-setting have developed, it would be difficult to assess psychopathic deficits such as Lacks Goals.

High Risk Developmental Periods for Onset of Psychopathic Traits

Knowledge about high risk developmental periods for the onset of psychopathic traits offers insight into when treatment practitioners should be vigilant for symptoms of maladaptive personality traits in youth. The current findings indicate that the highest risk

for the first trait appearance is between the ages of 10 and 12 for Pathological Lying, Callous/Lacks Empathy, and Stimulation Seeking and between the ages of 13 and 14 for Failure to Accept Responsibility, Lacks Remorse, Shallow Affect, Irresponsibility, Parasitic Orientation, Lacks Goals, and Impulsivity. Traits demonstrating elongated risk periods for first trait appearance included Manipulation and Grandiosity, which demonstrated stable risk from ages 12 to 16.

There have been few empirical examinations of psychopathy and treatment in youth samples. In young offenders, psychopathic traits have been negatively associated with treatment program compliance and progress (Falkenbach, Poythress, & Heide, 2003; Spain et al., 2004), level of improvement at discharge from treatment (Rogers, Jackson, Sewel, & Johansen, 2004), as well as days of program attendance, quality of participation, clean urine screens, and clinical improvement (O'Neill et al., 2003b). Unfortunately, no interventions have been specifically developed for youth with psychopathic traits (Stickle & Frick, 2002) and thus there are no empirical studies examining the treatment of psychopathic characteristics *per se* in youth.

The adult literature indicates that psychopathy is difficult to treat (Ogloff, Wong, & Greenwood, 1990; Rice, Harris, & Cormier, 1992). However, in a review of studies on psychopathy and treatment, Salekin (2002) noted that a greater proportion of psychopathic youth benefited from psychotherapy than did adult psychopaths. Thus, there is reason to be optimistic that, as the etiology and course of psychopathy are elucidated and knowledge of high risk developmental periods for the onset of psychopathic traits are identified, clinicians will have more guidance in developing increasingly timely and effective treatment plans for high-risk youth.

Limitations and Future Directions

There are several limitations of the current study. First, the methodology relied in part on self-reported retrospective recall for rating the age of onset of psychopathic traits. As noted previously, researchers have been concerned about the reliability of age onset recall based on retrospective methods. However, it should be noted that Henry et al. (1994) found moderately good agreement between prospective and retrospective measures of delinquency in adolescents. Others have found good reliability in children for retrospective recall of the age of onset for symptoms of conduct disorder and oppositional defiant disorder (Shaffer, Fisher, Dulcan, & Davies, 1996) as well as initial smoking behavior (Henriksen & Jackson, 1999). Further, in the current study, age of onset ratings for psychopathic traits were based on a comprehensive file review in addition to the self-reported information.

Second, the minimum age of onset was set at age 5 due to a lack of file information and concerns about the ability of participants to accurately discriminate onset at very young ages. This artificial restriction precluded the assessment of onset for traits that may first appear before the age of 5. For example, in the current study, 25% of the sample scored a 1 on Poor Anger Control by the age of 5 and 50% had scored a 1 by age 7. This pattern may be indicative of a floor effect in terms of the onset of this antisocial feature of psychopathy. In fact, it has been argued that physical aggression peaks around age two, is mostly stable or declining after age six, with very few individuals demonstrating a late onset of aggression (Nagin & Tremblay, 1999). Future research exploring the onset of physical aggression should use longitudinal methods with samples

of very young children. Teacher- and caregiver-based reports would also be invaluable in attempting to determine the onset of traits that may first appear at very young ages.

Third, although the goal of this study was to elucidate the onset of psychopathy, the generalizability of the results are limited by the sample characteristics as well as the measurement method employed. The current sample was composed of serious adolescent male offenders, primarily of Caucasian and Aboriginal descent. Scores on the PCL:YV in the sample averaged almost 27, suggesting a relatively severe group of young offenders in terms of psychopathic traits. To date, it is unclear how psychopathic traits function across the two sexes and in different ethnic groups (Jones et al., 2006; McCoy & Edens, 2006; Odgers, Reppucci, & Moretti, 2005). Thus, future research should investigate the onset of psychopathic traits in both males and females, in different ethnic groups, and across multiple contexts, such as community, psychiatric, and probation settings.

In terms of measurement, this study explored the onset of psychopathic traits as they are conceptualized by the PCL:YV. As noted by Blashfeld (1984), when evaluating a construct like psychopathy, it is impossible to separate the construct from the measure that is used to assess it. The PCL:YV is designed to be used in adolescents aged 12 to 18 and thus may not be ideal for investigating the onset of traits that may first appear before age 12. Importantly as well, the contemporary measurement of psychopathy has drifted somewhat from the classical description by Cleckley, with several of his criteria (e.g., lack of nervousness, good intelligence) not represented in the Psychopathy Checklist measures (Brinkley, Newman, & Widiger, 2005). Others have proposed alternative conceptualizations of psychopathy based on general personality theory (Blackburn, 1998; Hart & Hare, 1994; Lynam, 2002; Lynam et al., 2005; Salekin, Leistico, Trobst, Schrum,

& Lochman, 2005; Widiger & Lynam, 1998). Thus, it would be useful to use other theoretical models of psychopathy or alternative measurement methods to determine whether similar or different patterns of trait onset emerge.

Fourth, this study measured the onset of psychopathic traits, but did not explicitly measure the occurrence or timing of the potential *offset* of the interpersonal, affective, and behavioral traits of psychopathy. Future research should examine whether there are environmental factors that influence the onset and offset as well as the general stability of psychopathic traits across key developmental periods. It would also be useful to examine onset patterns within different subgroups of youth (e.g., high versus low PCL:YV scores, early versus late onset) and elucidate any treatment implications of differing lengths of time between first trait appearance and full trait manifestation for different psychopathic traits.

Finally, within the framework of the PCL:YV conceptualization of psychopathy, this study developed a variety of indicators in order to capture early manifestations of psychopathic traits and examine their onset. An effort was made to design age appropriate indicators; however, it remains unclear which attitudes, feelings, and behaviors may be the best indicators of psychopathy in children and adolescents. What is clear is that indicators must be developmentally informed (Johnstone & Cooke, 2004). Importantly, the developmental principle of *heterotypic continuity* dictates that the expression of a trait may change across the lifespan (e.g., Rutter, Kim-Cohen, & Maughan, 2006). Future researchers face a formidable challenge in determining which features of adult psychopathy are applicable to younger individuals, at what level these traits become non-normative or psychopathic, and using the developmental

psychopathology literature to develop age-appropriate indicators of psychopathic traits for youth samples. Survival analysis may be a promising analytic tool to examine questions such as the remission of psychopathic symptoms over time and the onset of the disorder itself.

References

- Allen, J. J. (1986). A developmental approach to self-monitoring behavior. *Communication Monographs, 53*, 277-288.
- Aloise-Young, P. A. (1993). The development of self-presentation: Self-promotion in 6- to 10-year-old children. *Social Cognition, 11*, 201-222.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Angold, A., Erkanli, A., Costello, E. J., & Rutter, M. (1996). Precision, reliability and accuracy in the dating of symptom onsets in child and adolescent psychopathology. *Journal of Child Psychology and Psychiatry, 37*, 657-664.
- Banerjee, R. (2002). Audience effects on self-presentation in childhood. *Social Development, 11*, 487-507.
- Banerjee, R., & Lintern, V. (2000). Boys will be boys: The effect of social evaluation concerns on gender-typing. *Social Development, 9*, 397-408.
- Banerjee, R., & Yuill, N. (1999) Children's understanding of self-presentational display rules: Associations with mental-state understanding. *British Journal of Developmental Psychology, 17*, 111-124.
- Barrett, K. C. (1998). The origins of guilt in early childhood. In J. Bybee (Ed.), *Guilt and children* (pp. 75-90). San Diego, CA: Academic Press, Inc.
- Beiser, M., Erickson, D., & Fleming, J. A. (1993). Establishing the onset of psychotic illness. *American Journal of Psychiatry, 150*, 1349-1354.
- Bennett, M. (1990). Children's understanding of the mitigating function of disclaimers. *Journal of Social Psychology, 130*, 29-37.
- Bennett, M., & Yeeles, C. (1990a). Children's understanding of showing off. *Journal of Social Psychology, 130*, 591-596.
- Bennett, M., & Yeeles, C. (1990b). Children's understanding of the self-presentational strategies of ingratiation and self-promotion. *European Journal of Social Psychology, 20*, 455-461.
- Blackburn, R. (1998). Psychopathy and the contribution of personality to violence. In T. Millon, E. Simonsen, M. Birket-Smith, & R. D. Davis (Eds.), *Psychopathy: Antisocial, criminal, and violent behavior* (pp. 50-68). New York: Guilford Press.

- Blackburn, R., & Lee-Evans, J. M. (1985). Reactions of primary and secondary psychopaths to anger-evoking situations. *British Journal of Clinical Psychology*, *24*, 93-100.
- Blashfeld, R. K. (1984). *The classification of psychopathology*. New York: Plenum Press.
- Blair, R. J. R. (1995). A cognitive developmental approach to morality: Investigating the psychopath. *Cognition*, *57*, 1-29.
- Blair, R. J. R. (1997). Moral reasoning and the child with psychopathic tendencies. *Personality and Individual Differences*, *22*, 731-739.
- Blair, R. J. R. (1999). Responsiveness to distress cues in the child with psychopathic tendencies. *Personality and Individual Differences*, *27*, 135-145.
- Blair, R. J. R. (2005). Responding to the emotions of others: Dissociating forms of empathy through the study of typical and psychiatric populations. *Consciousness and Cognition: An International Journal*, *14*, 698-718.
- Blair, R. J. R., Budhani, S., Colledge, E., & Scott, S. (2005). Deafness to fear in boys with psychopathic tendencies. *Journal of Child Psychology and Psychiatry*, *46*, 327-336.
- Blair R. J. R., & Coles, M. (2000). Expression recognition and behavioral problems in early adolescence. *Cognitive Development*, *15*, 421-434.
- Blair, R. J. R., Colledge, E., Murray, L., & Mitchell, D. G. V. (2001). A selective impairment in the processing of sad and fearful expressions in children with psychopathic tendencies. *Journal of Abnormal Child Psychology*, *29*, 491-498.
- Blair, R. J. R., Jones, L., Clark, F., & Smith, M. (1997). The psychopathic individual: A lack of responsiveness to distress cues? *Psychophysiology*, *34*, 192-198.
- Blair, R. J. R., Monson, J., & Frederickson, N. (2001). Moral reasoning and conduct problems in children with emotional and behavioral difficulties. *Personality and Individual Differences*, *31*, 799-811.
- Blair, R. J. R., Pescharadt, K. S., Budhani, S., Mitchell, D. G., & Pine, D. S. (2006). The development of psychopathy. *Journal of Child Psychology and Psychiatry*, *47*, 262-276.
- Blair, R. J. R., Sellars, C., Strickland, I., Clark, F., Williams, A., Smith, M., & Jones, L. (1996). Theory of mind in the psychopath. *Journal of Forensic Psychiatry*, *7*, 15-25.
- Blonigen, D. M., Carlson, S. R., Kreuger, R. F., & Patrick, C. J. (2003). A twin study of self-reported psychopathic personality traits. *Personality and Individual Differences*, *35*, 179-197.

- Blonigen, D. M., Hicks, B. M., Kruger, R. F., Patrick, C. J., & Iacono, W. G. (2006). Continuity and change in psychopathic traits as measured via normal-range personality: A longitudinal-biometric study. *Journal of Abnormal Psychology, 115*, 85-95.
- Bovasso, G.B., Alterman, A. I., Cacciola, J.S., & Rutherford, M. J. (2002). The prediction of violent and nonviolent criminal behavior in a methadone maintenance population. *Journal of Personality Disorders, 16*, 360-373.
- Bouffard, L., Bastin, E., & Lapierre, S. (1996). Future time perspective according to women's age and social role during adulthood. *Sex Roles, 34*, 253-285.
- Bowlby (1951). *Maternal care and mental health*. New York: Columbia University Press.
- Brandt, J. R., Kennedy, W. A., Patrick, C. J., & Curtin, J. J. (1997). Assessment of psychopathy in a population of incarcerated adolescent offenders. *Psychological Assessment, 9*, 429-435.
- Breesch-Grommen, R., & Nederlands, T. G. (1975). Time perspective in adulthood and old age: Theoretical and empirical contributions. *Gerontologie, 6*, 90-105.
- Brinkley, C. A., Newman, J. P., & Widiger, T. A. (2005). Two approaches to parsing the heterogeneity of psychopathy. *Clinical Psychology: Science and Practice, 11*, 69-94.
- Burke, K. C., Burke, J. D., Regier, D. A., & Rae, D. S. (1990). Age at onset of selected mental disorders in five community populations. *Archives of General Psychiatry, 47*, 511-518.
- Campbell, M. A., Porter, S., & Santor, D. (2004). Psychopathic traits in adolescent offenders: An evaluation of criminal history, clinical, and psychosocial correlates. *Behavioral Sciences and the Law, 22*, 23-47.
- Campbell, J. S., Pulos, S., & Hogan, M. (2005). Reliability generalization of the Psychopathy Checklist applied in youthful samples. *Educational and Psychological Measurement, 65*, 639-656.
- Cassidy, J., Ziv, Y., Mehta, T. G., & Feeney, B. C. (2003). Feedback seeking in children and adolescents: Associations with self-perceptions, attachment representations and depression. *Child Development, 74*, 612-628.
- Catchpole, R. E. H., & Gretton, H. M. (2003). The predictive validity of risk assessment with violent young offenders: A 1-year examination of criminal outcome. *Criminal Justice and Behavior, 30*, 688-708.
- Cauffman, E., & Steinberg, L. (2000). (Im)maturity of judgment in adolescence: Why adolescents may be less culpable than adults. *Behavioral Sciences and the Law, 18*, 741-760.

- Chandler, M., & Moran, T. (1990). Psychopathy and moral development: A comparative study of delinquent and non-delinquent youth. *Development and Psychopathology*, 2, 227-246.
- Cicchetti, D., & Rogosch, F. A. Equifinality and multifinality in developmental psychopathology. *Development and Psychopathology*, 8, 597-600.
- Cicchetti, D. V., & Sparrow, S. A. (1981). Developing criteria for establishing interrater reliability of specific items: Applications to assessment of adaptive behavior. *American Journal of Mental Deficiency*, 86, 127-137.
- Clayton, D. G. (1978). A model for association in bivariate life tables and its application in epidemiological studies of familial tendency in chronic disease incidence. *Biometrika*, 65, 141-151.
- Cleckley, H. (1976). *The mask of sanity* (5th ed.). St. Louis, MO: Mosby.
- Colby, A., Kohlberg, L., Gibbs, J., & Leiberman, M. (1983). A longitudinal study of moral judgment. In B. Puka (Ed.), *New research in moral development* (pp. 1-124). New York: Garland Publishing, Inc.
- Cooke, D. J., & Michie, C. (2001). Refining the construct of psychopathy: Towards a hierarchical model. *Psychological Assessment*, 13, 171-188.
- Corrado, R. R., Vincent, G. M., Hart, S. D., & Cohen, I. M. (2004). Predictive validity of the Psychopathy Checklist: Youth Version for general and violent recidivism. *Behavioral Sciences and the Law*, 22, 5-22.
- Cox, D. R. (1972). Regression models and life tables. *Journal of the Royal Statistical Society*, B34, 187-220.
- Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms on reactive and proactive aggression. *Child Development*, 67, 993-1002.
- Das, S., & Babu, N. (2004). Children's acquisition of a theory of mind: The role of presence vs absence of sibling. *Psychological Studies*, 49, 36-44.
- Dodge, K. A., & Pettit, G. S. (2003). A biopsychosocial model of the development of chronic conduct problems in adolescence. *Developmental Psychology*, 39, 349-371.
- Dolan, M. C., & Fullam, R., (2004). Theory of mind and mentalizing ability in antisocial personality disorders with and without psychopathy. *Psychological Medicine*, 34, 1093-1102.
- Dolan, M. C., & Rennie, C. E. (2006). Reliability and validity of the Psychopathy Checklist: Youth Version in a UK sample of conduct disordered boys. *Personality and Individual Differences*, 40, 65-75.

- Dondi, M., Simion, F., & Caltran, G. (1999). Can newborns discriminate between their own cry and the cry of another newborn infant? *Developmental Psychology, 35*, 418-426.
- Doninger, N. A., & Kosson, D. S. (2001). Interpersonal construct systems among psychopaths. *Personality and Individual Differences, 30*, 1263-1281.
- Douglas, K.D., Vincent, G. M., & Edens, J. F. (2006). Risk for criminal recidivism: The role of psychopathy. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 533-554). New York: Guilford Press.
- Dunn, J. (1987). The beginnings of moral understanding: Development in the second year. In J. Kagan & S. Lamb (Eds.), *The emergence of morality in young children* (pp. 91-112). Chicago, IL: University of Chicago Press.
- Edens, J. F., Buffington, J. K., Tomicic, T. L., & Riley, B. D. (2001). Effects of positive impression management on the Psychopathic Personality Inventory. *Law and Human Behavior, 25*, 235-256.
- Edens, J. F., & Cahill, M. A. (in press). Psychopathy in adolescence and criminal recidivism in young adulthood: Longitudinal results from a multi-ethnic sample of youthful offenders. *Assessment*.
- Edens, J. F., & Campbell, J. S. (in press). Identifying youths at risk for institutional misconduct: A meta-analytic investigation of the Psychopathy Checklist measures. *Psychological Science*.
- Edens, J. F., Campbell, J. S., & Weir, J. M. (in press). Youth psychopathy and criminal recidivism: A meta-analysis of the Psychopathy Checklist measures. *Law and Human Behavior*.
- Edens, J. F., Guy, L. S., & Hernandez, K. (2003). Psychopathic traits predict attitudes toward a juvenile capital murderer. *Behavioral Sciences and the Law, 21*, 807-828.
- Edens, J. F., & Petrila, J. (2006). Legal and ethical issues in the assessment and treatment of psychopathy. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 573-588). New York: Guilford Press.
- Edens, J. F., Petrila, J., & Buffington-Vollum, J. K. (2001). Psychopathy and the death penalty: Can the Psychopathy Checklist-Revised identify offenders who represent 'a continuing threat to society?' *Journal of Psychiatry and Law, 29*, 433-481.
- Edens, J. F., Poythress, N. G., & Lilienfeld, S. O. (1999). Identifying inmates at risk for disciplinary infractions: A comparison of two measures of psychopathy. *Behavioral Sciences and the Law, 17*, 435-443.
- Edens, J. F., Skeem, J. L., Cruise, K. R., & Cauffman, E. (2001). Assessment of "juvenile psychopathy" and its association with violence: A critical review. *Behavioral Sciences and the Law, 19*, 53-80.

- Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annual Review of Psychology, 51*, 665-697.
- Falkenbach, D. M., Poythress, N. G., & Heide, K. M. (2003). Psychopathic features in a juvenile diversion population: Reliability and predictive validity of two self-report measures. *Behavioral Sciences and the Law, 21*, 787-805.
- Farrington, D. P. (2006). Family background and psychopathy. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 229-250) New York: Guilford Press.
- Farrington, D. P., Loeber, R., Elliott, D. S., Hawkins, J. D., Kandel, D. B., Klein, M. W., McCord, J., Rowe, D. C., Tremblay, R. E. (1990). Advancing knowledge about the onset of delinquency and crime. In B. B. Lahey & A. E. Kazdin (Eds.), *Advances in clinical child psychology: Vol. 13* (pp. 283-342). New York: Plenum Press.
- Feshbach, N. D. (1978). Studies of empathic behavior in children. In B. A. Maher (Ed.), *Progress in experimental personality research* (pp. 1-47). New York: Academic Press.
- Fingerman, K. L., & Perlmutter, M. (1995). Future time perspective and life events across adulthood. *Journal of General Psychology, 122*, 95-111.
- Fisher, L., & Blair, R. J. R. (1998). Cognitive impairment and its relationship to psychopathic tendencies in children with emotional and behavioral difficulties. *Journal of Abnormal Child Psychology, 26*, 511-519.
- Forth, A. E. (1995). Psychopathy in adolescent offenders: Assessment, family background, and violence. *Issues in Criminological and Legal Psychology, 24*, 42-44.
- Forth, A. E. (2006). Hare Psychopathy Checklist: Youth Version. In T. Grisso, G. M. Vincent, & D. Seagrave (Eds.), *Mental health screening and assessment in juvenile justice* (pp. 324-338). New York: Guilford Press.
- Forth, A. E., & Burke, H. C. (1998). Psychopathy in adolescence: Assessment, violence, and developmental precursors. In D. J. Cooke, A. E. Forth, & R. D. Hare (Eds.), *Psychopathy: Theory, research, and implications for society* (pp. 205-229). New York: Kluwer Academic Publishers.
- Forth, A. E., Hart, S. D., & Hare, R. D. (1990). Assessment of psychopathy in male young offenders. *Psychological Assessment, 2*, 342-344.
- Forth, A. E., Kosson, D. S., & Hare, R. D. (2003). *The Psychopathy Checklist: Youth Version*. Toronto: Multi-Health Systems.
- Forth, A. E., & Mailloux, D. L. (2000). Psychopathy in youth: What do we know? In C. B. Gacono (Ed.), *Clinical and forensic assessment of psychopathy: A practitioner's guide* (pp. 25-54). Mahwah, NJ: Lawrence Erlbaum Associates.

- Forth, A. E., & Tobin, F. (1995). Psychopathy and young offenders: Rates of childhood maltreatment. *Forum for Corrections Research, 7*, 20–27.
- Frick, P. J. (1998). *Conduct disorders and severe antisocial behavior*. New York: Plenum.
- Frick, P. J. (2002). Juvenile psychopathy from a developmental perspective: Implications for construct development and use in forensic assessments. *Law and Human Behavior, 26*, 247-253.
- Frick, P. J., Bodin, S. D., & Barry, C. T. (2000). Psychopathic traits and conduct problems in community and clinic-referred samples of children: Further development of the Psychopathy Screening Device. *Psychological Assessment, 12*, 382-393.
- Frick, P. J., Kimonis, E. R., Dandreaux, D. M., & Farell, J. M. (2003). The 4-year stability of psychopathic traits in non-referred youth. *Behavioral Sciences and the Law, 21*, 713-736.
- Frick, P. J., Lilienfeld, S. O., Ellis, M., Loney, B., & Silverthorn, P. (1999). The association between anxiety and psychopathy dimensions in children. *Journal of Abnormal Child Psychology, 27*, 383-392.
- Frick, P. J., & Morris, A. S. (2004). Temperament and developmental pathways to conduct problems in children. *Journal of Clinical Child and Adolescent Psychology, 33*, 54-68.
- Fulero, S.M. (1995). Review of the Hare Psychopathy Checklist – Revised. In J. C. Conoley & J. C. Impara (Eds.), *Twelfth measurements yearbook* (pp. 453-454). Lincoln, NE: Buros Institute.
- Garner, R. (1990). Children's use of strategies in reading. In D. F. Bjorklund (Ed.), *Children's strategies: Contemporary views of cognitive development* (pp. 245-268). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Gibbons, J. D. (1993). *Nonparametric measures of association*. Newbury Park, CA: Sage.
- Ginzberg, E. (1972). Toward a theory of occupational choice: A restatement. *Vocational Guidance Quarterly, 12*, 10-14.
- Goffman, E. (1959). *The presentation of self in everyday life*. Oxford, England: Doubleday.
- Greene, A. L. (1986). Future-time perspective in adolescence: The present of things future revisited. *Journal of Youth and Adolescence, 15*, 99-113.
- Gretton, H. M., Hare, R. D., & Catchpole, R. E. H. (2004). Psychopathy and offending from adolescence to adulthood: A 10-year follow-up. *Journal of Consulting and Clinical Psychology, 72*, 636-645.

- Gretton, H. M., McBride, M., Hare, R. D., O'Shaughnessy, R., & Kumka, G. (2001). Psychopathy and recidivism in adolescent sex offenders. *Criminal Justice and Behavior, 28*, 427-449.
- Gustafson, S. B. (1995). Aberrant self-promotion: The dark side of normal. *Issues in Criminological and Legal Psychology, 24*, 61-62.
- Gustafson, S. B., & Ritzer, D. R. (1995). The dark side of normal: A psychopathy-linked pattern called aberrant self-promotion. *European Journal of Personality, 9*, 147-183.
- Hafner, C. L., Begue, L., Choma, B. L., & Dempsey, J. L. (2005). Belief in a just world and commitment to long-term deserved outcomes. *Social Justice Research, 18*, 429-444.
- Häfner, H., Riecher-Rössler, A., Hambrecht, M., Maurer, K., Meissner, S., Schmidtke, A., Fatkenheuer, B., Löffler, W., & van der Heiden, W. (1992). IRAOS: An instrument for the assessment of onset and early course of schizophrenia. *Schizophrenia Research, 6*, 209-223.
- Hare, R. D. (1991). *Manual for the Hare Psychopathy Checklist – Revised*. Toronto: Multi-Health Systems.
- Hare, R.D. (1996). Psychopathy: A clinical construct whose time has come. *Criminal Justice and Behavior, 23*, 25-54.
- Hare, R. D. (2003). *Manual for the Hare Psychopathy Checklist – Revised* (2nd ed.). Toronto: Multi-Health Systems.
- Hare, R. D., Forth, A. E., & Hart, S. D. (1989). The psychopath as prototype for pathological lying and deception. In J. C. Yuille (Ed.), *Credibility assessment* (pp. 25-49). New York: Kluwer Academic/Plenum Publishers.
- Hare, R. D., McPherson, L. M., & Forth, A. E. (1988). Male psychopaths and their criminal careers. *Journal of Consulting and Clinical Psychology, 56*, 710-714.
- Harpur, T. J., Hakstian, A. R., & Hare, R. D. (1988). Factor structure of the Psychopathy Checklist. *Journal of Consulting and Clinical Psychology, 103*, 604-609.
- Harpur, T. J., & Hare, R. D. (1994). Assessment of psychopathy as a function of age. *Journal of Abnormal Psychology, 103*, 604-609.
- Harris, G. T., Rice, M. E., & Lalumiere, M. (2001). Criminal violence: The roles of psychopathy, neurodevelopmental insults, and antisocial parenting. *Criminal Justice and Behavior, 28*, 402-426.
- Harris, G. T., Rice, M. E., & Quinsey, V. L. (1994). Psychopathy as a taxon: Evidence that psychopaths are a discrete class. *Journal of Consulting and Clinical Psychology, 62*, 387-397.

- Hart, S. D., & Hare, R. D. (1994). Psychopathy and the Big 5: Correlations between observers' ratings of normal and pathological personality. *Journal of Personality Disorders, 8*, 32-40.
- Hart, S. D., & Hare, R. D. (1997). Psychopathy: Assessment and association with criminal conduct. In D. M. Stoff & J. Breiling (Eds.), *Handbook of antisocial behavior* (pp. 22-35). New York: Wiley.
- Hart, S. D., Watt, K. A., & Vincent, G. M. (2002). Commentary on Seagrave and Grisso: Impressions of the state of the art. *Law and Human Behavior, 26*, 241-245.
- Hatch, J. A. (1987). Impression management in kindergarten classrooms: An analysis of children's face-work in peer interactions. *Anthropology and Education Quarterly, 18*, 100-115.
- Haugaard, P. (1995). Frailty models for survival data. *Lifetime Data Analysis, 1*, 255-273.
- Hemphill, J. F., Hare, R. D., & Wong, S. (1998). Psychopathy and recidivism: A review. *Legal and Criminological Psychology, 3*, 139-170.
- Henriksen, L., & Jackson, C. (1999). Reliability of children's self-reported cigarette smoking. *Addictive Behaviors, 24*, 271-277.
- Henry, B., Moffitt, T. E., Caspi, A., Langley, J. & Silva, P. A. (1994). On the 'remembrance of things past': A longitudinal evaluation of the retrospective method. *Psychological Assessment, 6*, 92-101.
- Hess, A. K. (1973). Time and crime: Temporal perception in selected criminal samples. *Proceedings of the Annual Convention of the American Psychological Association, 383-384*.
- Heyman, G. D., & Legare, C. H. (2005). Children's evaluation of sources of information about traits. *Developmental Psychology, 41*, 636-647.
- Hinshaw, S. P., Lahey, B. B., & Hart, E. L. (1993). Issues of taxonomy and comorbidity in the development of conduct disorder. *Development and Psychopathology, 5*, 31-49.
- Hoffmann, M. L. (2000). *Empathy and moral development: Implications for caring and justice*. New York: Cambridge University Press.
- Hougaard, P. (1995). Frailty models for survival data. *Lifetime Data Analysis, 1*, 255-273.
- Ishikawa, S. S., Raine, A., Lencz, T., Bihrlle, S., & Lacasse, L. (2001). Increased height and bulk in antisocial personality disorder and its subtypes. *Psychiatry Research, 105*, 211-219.
- Johnstone, L., & Cooke, D. J. (2004). Psychopathic-like traits in childhood: Conceptual and measurement concerns. *Behavioral Sciences and the Law, 22*, 103-125.

- Jones, S., Cauffman, E., Miller, J. D., & Mulvey, E. (2006). Investigating different Factor structures of the Psychopathy Checklist: Youth Version: Confirmatory factor analytic findings. *Psychological Assessment, 18*, 33-48.
- Kaplan, E. L., & Meier, P. (1958). Nonparametric estimation from incomplete observations. *Journal of the American Statistical Association, 53*, 457-48.
- Kimonis, E. R., Frick, P. J., Fazekas, H., & Loney, B. R. (2004). Psychopathy, aggression, and the processing of emotional stimuli in non-referred girls and boys. *Behavioral Sciences and the Law, 24*, 21-37.
- Kochanska, G. (1993). Toward a synthesis of parental socialization and child temperament in early development of conscience. *Child Development, 64*, 325-347.
- Kochanska, G. (1995). Children's temperament, mother's discipline, and security of attachment: Multiple pathways to emerging internalization. *Child Development, 66*, 597-615.
- Kochanska, G. (1997). Multiple pathways to conscience for children with different temperaments: From toddlerhood to age 5. *Developmental Psychology, 33*, 228-240.
- Kochanska, G., DeVet, K., Goldman, M., Murray, K., & Putnam, S. P. (1994). Maternal reports of conscience development and temperament in young children. *Child Development, 65*, 852-868.
- Kochanska, G., Gross, J. N., Lin, M., & Nichols, K. E. (2002). Guilt in young children: Development, determinants, and relations with a broader system of standards. *Child Development, 73*, 461-482.
- Kohlberg, L. (1984). *The psychology of moral development: Essays on moral development: Vol. 2*. San Francisco: Harper and Row.
- Koivisto, H., & Haapasalo, J. (1996). Childhood maltreatment and adulthood psychopathy in light of file-based assessments among mental state examinees. *Studies on Crime and Crime Prevention, 5*, 91-104.
- Kosson, D. S., Cyterski, T. D., Steuerwald, B. L., Neumann, C. S., & Walker-Matthews, S. (2002). The reliability and validity of the Psychopathy Checklist: Youth Version (PCL:YV) in non-incarcerated adolescent males. *Psychological Assessment, 14*, 97-109.
- Kosson, D. S., Gacono, C. B., & Bodholdt, R. H. (2000). Assessing psychopathy: Interpersonal aspects and clinical interviewing. In C. B. Gacono (Ed.), *The clinical and forensic assessment of psychopathy: A practitioner's guide* (pp. 203-229). Mahwah, NJ: Lawrence Erlbaum Associates.
- Kosson, D. S., Smith, S. S., & Newman, J. P. (1990). Evaluating the construct validity of psychopathy in Black and White male inmates: Three preliminary studies. *Journal of Abnormal Psychology, 99*, 250-259.

- Kosson, D. S., Steuerwald, B. L., Forth, A. E., & Kirkhart, K. J. (1997). A new method for assessing the interpersonal behavior of psychopathic individuals: Preliminary validation studies. *Psychological Assessment, 9*, 89-101.
- Kotler, J.S., & McMahon, R. J. (2005). Child psychopathy: Theories, measurement, and relations with the development and persistence of conduct problems. *Clinical Child and Family Psychology Review, 8*, 291-325.
- Lahey, B. B., Goodman, S. H., Waldman, I. D., Bird, H., Canino, G., Jensen, P., Regier, D., Leaf, P. J., Gordon, R., & Applegate, B. (1999). Relation of age of onset to the type and severity of child and adolescent conduct problems. *Journal of Abnormal Child Psychology, 27*, 247-260.
- Lahey, B. B., Loeber, R., Quay, H. C., Applegate, B., Shaffer, D., Waldman, I., Hart, E. L., McBurnett, K., Frick, P. J., Jensen, P. S., Dulcan, M. K., Canino, G., & Bird, H. R. (1998). Validity of DSM-IV subtypes of conduct disorder based on age of onset. *Journal of the American Academy of Child and Adolescent Psychiatry, 37*, 435-442.
- Lang, S., af Klinteberg, B., & Alm, P. (2002). Adult psychopathy and violent behavior in men with early neglect and abuse. *Acta Psychiatrica Scandinavica, 106*, 93-100.
- Langstrom, N., & Grann, M. (2000). Risk for criminal recidivism among young sex offenders. *Journal of Interpersonal Violence, 15*, 855-871.
- Lens, W., & Gailly, A. (1980). Extension of future time perspective in motivational goals of different age groups. *International Journal of Behavioral Development, 3*, 1-17.
- Leslie, A. M. (1987). Pretense and representation: The origins of 'theory of mind.' *Psychological Review, 94*, 412-426.
- Lessing, E. E. (1972). Extension of personal future time perspective, age, and life satisfaction of children and adolescents. *Developmental Psychology, 6*, 457-468.
- Lilienfeld, S. O., Hess, T., & Rowland, C. (1996). Psychopathic personality traits and temporal perspective: A test of the short time horizon hypothesis. *Journal of Psychopathology and Behavioral Assessment, 18*, 285-314.
- Livesley, W. J., Jang, K. L., Jackson, D. N., & Vernon, P. A. (1993). Genetic and environmental contributions to dimensions of personality disorder. *American Journal of Psychiatry, 150*, 1826-1831.
- Loeber, R. (1982). The stability of antisocial and delinquent child behavior: A review. *Child Development, 53*, 1431-1446.
- Looman, J., Abracen, J., Maillet, G., & DiFazio, R. (1998). Phallometric non-responding in sexual offenders. *Sexual Abuse: Journal of Research and Treatment, 10*, 325-336.

- Luke, D. A., & Holman, S. M. (1998). Time and change: Using survival analysis in clinical assessment and treatment evaluation. *Psychological Assessment, 10*, 360-378.
- Lykken, D. T. (1995). *The antisocial personalities*. Hillsdale, NJ: Erlbaum.
- Lynam, D. R. (1996). Early identification of chronic offenders: Who is the fledgling psychopath? *Psychological Bulletin, 120*, 209-234.
- Lynam, D. R. (1997). Pursuing the psychopath: Capturing the fledgling psychopath in a nomological net. *Journal of Abnormal Psychology, 106*, 425-438.
- Lynam, D. R. (1998). Early identification of the fledgling psychopath: Locating the psychopathic child in the current nomenclature. *Journal of Abnormal Psychology, 107*, 566-575.
- Lynam, D. R. (2002). Fledgling psychopathy: A view from personality theory. *Law and Human Behavior, 26*, 255-259.
- Lynam, D. R., Caspi, A., Moffitt, T. E., Raine, A., Loeber, R., Stouthamer-Loeber, M. (2005). Adolescent psychopathy and the Big Five: Results from two samples. *Journal of Abnormal Child Psychology, 33*, 431-443.
- Lynam, D. R., & Gudonis, L. (2005). The development of psychopathy. *Annual Review of Clinical Psychology, 1*, 381-407.
- Lyon, D. R., & Ogloff, J. R. P. (2000). Legal and ethical issues in psychopathy assessment. In C. B. Gacono (Ed.), *The clinical and forensic assessment of psychopathy: A practitioner's guide* (pp. 139-173). Mahwah, NJ: Lawrence Erlbaum Associates.
- Mailloux, D., Forth, A. E., & Kroner, D. G. (1997). Psychopathy and substance abuse in adolescent male offenders. *Psychological Reports, 80*, 529-530.
- Marczyk, G. R., Heilbrun, K., Lander, T., & DeMatteo, D. (2005). Predicting juvenile recidivism with the PCL:YV, MAYSI, and YLS/CMI. *International Journal of Forensic Mental Health, 2*, 7-18.
- Marshall, L. A., & Cooke, D. J. (1999). The childhood experiences of psychopaths: A retrospective study of familial and societal factors. *Journal of Personality Disorders, 13*, 211-225.
- Marshall, S. K., Tilton-Weaver, L. C., & Bosdet, L. (2005). Information management: Considering adolescents' regulation of parental knowledge. *Journal of Adolescence, 28*, 633-647.
- McCord, J. (2001). Psychosocial Contributions to Psychopathy and Violence. In A. Raine & J. Sanmartin (Eds.), *Violence and Psychopathy* (pp. 141-169). New York: Kluwer Academic/Plenum Publishers.

- McCord, W., & McCord, J. (1964). *The psychopath: An essay on the criminal mind*. Princeton, NJ: Van Nostrand.
- McCoy, W. K., & Edens, J. F. (2006). Do Black and White youths differ in levels of psychopathic traits? A meta-analysis of the Psychopathy Checklist measures. *Journal of Consulting and Clinical Psychology, 74*, 386-392.
- McCrae, R. R., Costa, P. T., Terracciano, A., Parker, W. D., Mills, C. J., De Fruyt, F., & Mervielde, I. (2002). Personality trait development from age 12 to age 18: Longitudinal, cross-sectional and cross-cultural analyses. *Journal of Personality and Social Psychology, 83*, 1456-1468.
- McGraw, K. O., & Wong, S. P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological Methods, 1*, 30-46.
- McInerney, D. M. (2004). A discussion of future time perspective. *Educational Psychology Review, 16*, 141-151.
- Mealey, L. (1995). The sociobiology of sociopathy: An integrated evolutionary model. *Behavioral and Brain Sciences, 18*, 523-599.
- Meloy, J. R., & Gacono, C. B. (1998). The internal world of the psychopath. In T. Millon, E. Simonsen, M. Birket-Smith, & R. D. Davis (Eds.), *Psychopathy: Antisocial, criminal, and violent behavior* (pp. 95-109). New York: Guilford Press.
- Millon, T. (1981). *Disorders of Personality DSM-III: Axis II*. New York: Wiley.
- Mitchell, P. (2003). Acquiring a theory of mind. In A. Slater & Bremner, G. (Eds.), *An introduction to developmental psychology* (pp. 237-257). Malden, MA: Blackwell Publishing.
- Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*, 674-701.
- Moffitt, T. E. (2006). Life-course-persistent versus adolescence-limited antisocial behavior. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Vol 3. Risk, disorder, and adaptation* (2nd ed., pp. 570-598). Hoboken, NJ: Wiley.
- Moffitt, T. E., Caspi, A., Harrington, H., & Milne, B. J. (2002). Males on the life-course-persistent and adolescence-limited antisocial pathways: Follow-up at age 26 years. *Development and Psychopathology, 14*, 179-207.
- Moltó, J., Poy, R., & Torrubia, R. (2000). Standardization of the Hare Psychopathy Checklist-Revised in a Spanish prison sample. *Journal of Personality Disorders, 14*, 84-96.
- Monahan, J., & Steadman, H. J. (1994). *Violence and mental disorder: Developments in risk assessment*. Chicago, IL: University of Chicago Press.

- Monks, F. (1968). Future time perspective in adolescents. *Human Development, 11*, 107-123.
- Murdock Hicks, M., Rogers, R., & Cashel, M. L. (2000). Predictions of violent and total infractions among institutionalized male juvenile offenders. *Journal of the American Academy of Psychiatry and the Law, 28*, 183-190.
- Murrie, D. C., Cornell, D. G., Kaplan, S., McConville, D., & Levy-Elkon, A. (2004). Psychopathy scores and violence among juvenile offenders: A multi-measure study. *Behavioral Sciences and the Law, 22*, 49-67.
- Murrie, D. C., Cornell, D. G., & McCoy, W., K. (2005). Psychopathy, conduct disorder, and stigma: Does diagnostic labeling influence juvenile probation officer recommendations? *Law and Human Behavior, 29*, 323-342.
- Myers, W. C., Burket, R., & Harris, H. E. (1995). Adolescent psychopathy in relation to delinquent behaviors, Conduct Disorder, and personality disorders. *Journal of Forensic Sciences, 40*, 436-440.
- Nagin, D., & Tremblay, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development, 70*, 1181-1196.
- Nurmi, J. (1991). How do adolescents see their future? A review of the development of future orientation and planning. *Developmental Review, 11*, 1-59.
- Oakes, D. (1982). A model for association in bivariate survival data. *Journal of the Royal Statistical Society, B44*, 414-422.
- Odgers, C. L., Reppucci, N. D., & Moretti, M. M. (2005). Nipping psychopathy in the bud: An examination of the convergent, predictive, and theoretical utility of the PCL-YV among adolescent girls. *Behavioral Sciences and the Law, 23*, 743-763.
- Office of Juvenile Justice and Delinquency Prevention. (1999). *Juvenile offenders and victims: 1999 national report*. Pittsburgh, PA: National Center for Juvenile Justice.
- O'Neill, M. L., Lidz, V., & Heilbrun, K. (2003a). Predictors and correlates of psychopathic characteristics in substance abusing adolescents. *International Journal of Forensic Mental Health, 2*, 35-45.
- O'Neill, M. L., Lidz, V., & Heilbrun, K. (2003b). Adolescents with psychopathic characteristics in a substance abusing cohort: Treatment process and outcomes. *Law and Human Behavior, 27*, 299-313.
- Ogloff, J. R., Wong, S., & Greenwood, A. (1990). Treating criminal psychopaths in a Therapeutic Community program. *Behavioral Sciences and the Law, 8*, 181-190.
- Otto, R. K., & Heilbrun, K. (2002). The practice of forensic psychology: A look toward the future in light of the past. *American Psychologist, 57*, 5-18.

- Oxford, M., Cavell, T. A., & Hughes, J. N. (2003). Callous/unemotional traits moderate the relation between ineffective parenting and child externalizing problems: A partial replication and extension. *Journal of Clinical Child and Adolescent Psychology, 32*, 577-585.
- Pardini, D. A., Lochman, J. E., & Frick, P. J. (2003). Callous-unemotional traits and social cognitive processes in adjudicated youth. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*, 364-371.
- Patrick, C. J., Zempolich, K. A., & Levenston, G. K. (1997). Emotionality and violent behavior in psychopaths: A biosocial analysis. In A. Raine, P. A. Brennan, D. P. Farrington, & S. A. Mednick (Eds.), *Biosocial bases of violence* (pp. 15-161). New York: Plenum Press.
- Penney, S. R., & Moretti, M. M. (2005). The transfer of juveniles to adult court in Canada and the United States: Confused agendas and compromised assessment procedures. *International Journal of Forensic Mental Health, 4*, 19-37.
- Perkins, D. O., Leserman, J., Jarskog, L. F., Graham, K., Kazmer, J., & Lieberman, J. A. (2000). Characterizing and dating the onset of symptoms in psychotic illness: The Symptom Onset in Schizophrenia (SOS) inventory. *Schizophrenia Research, 44*, 1-10.
- Piaget, J. (1954). *Intelligence and affectivity: Their relationship during child development*. Palo Alto, CA: Annual Review, Inc.
- Porter, S. (1996). Without conscience or without active conscience? The etiology of psychopathy. revisited. *Aggression and Violent Behavior, 1*, 179-189.
- Poythress, N. G., Edens, J. F., & Lilienfeld, S. O. (1998). Identifying inmates at risk for disciplinary infractions: A comparison of two measures of psychopathy. *Behavioral Sciences and the Law, 17*, 435-443.
- Quinsey, V. L., Harris, G. T., Rice, M. E., & Cormier, C. A. (1998). *Violent offenders: Appraising and managing risk*. Washington, DC: American Psychological Association.
- Quinsey, V. L., Harris, G. T., Rice, M. E., & Cormier, C. A. (2006). *Violent offenders: Appraising and managing risk* (2nd ed.). Washington, DC: American Psychological Association.
- Rice, M. E., Harris, G. T., & Cormier, C. A. (1992). An evaluation of a maximum security therapeutic community for psychopaths and other mentally disordered offenders. *Law and Human Behavior, 16*, 399-412.
- Richell, R. A., Mitchell, D. G. V., Newman, C., Leonard, A., Baron-Cohen, S., Blair, R. J. R. (2003). Theory of mind and psychopathy: Can psychopathic individuals read the 'language of the eyes'? *Neuropsychologia, 41*, 523-526.

- Ridenour, T. A., Marchant, G. J., & Dean, R. S. (2001). Is the revised psychopathy checklist clinically useful for adolescents? *Journal of Psychoeducational Assessment, 19*, 227-238.
- Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin, 126*, 3-25.
- Robins, L. N. (1966). *Deviant children grown up*. Baltimore: Williams & Wilkins.
- Robins, L. N. (1978). Sturdy childhood predictors of adult antisocial behavior: Replications from longitudinal studies. *Psychological Medicine, 8*, 611-622.
- Robins, L. N., Schoenberg, S. P., Holmes, S. J., Ratcliff, K. S., Benham, A., & Works, J. (1985). Early home environment and retrospective recall: A test for concordance between siblings with and without psychiatric disorders. *American Journal of Orthopsychiatry, 55*, 27-41.
- Rogers, R., Jackson, R. L., Sewel, K. W., & Johansen, J. (2004). Predictors of treatment outcome in dually-diagnosed antisocial youth: An initial study of forensic inpatients. *Behavioral Sciences and the Law, 22*, 215-222.
- Rogers, R., Johansen, J., Chang, J. J., & Salekin, R. T. (1997). Predictors of adolescent psychopathy: Oppositional and conduct-disordered symptoms. *Journal of the American Academy of Psychiatry and the Law, 25*, 261-271.
- Rogers, R., Vitacco, M. J., Jackson, R. L., Martin, M., Collins, M., & Sewell, K. W. (2002). Faking psychopathy? An examination of response styles with antisocial youth. *Journal of Personality Assessment, 78*, 31-46.
- Ross, S. R., & Rausch, M. K. (2001). Psychopathic attributes and achievement dispositions in a college sample. *Personality and Individual Differences, 30*, 471-480.
- Ross, H., Smith, J., Spielmacher, C., & Recchia, H. (2004). Shading the truth: Self-serving biases in children's reports of sibling conflicts. *Merrill-Palmer Quarterly, 50*, 61-85.
- Rothbardt, M. K., Ahadi, S. A., & Hershey, K. L. (1994). Temperament and social behavior in childhood. *Merrill-Palmer Quarterly, 40*, 21-39.
- Rutherford, M., Cacciola, J. S., Alterman, A. I., McKay, J. R., & Cook, T. G. (1999). The 2-year test-retest reliability of the Psychopathy Checklist-Revised in methadone patients. *Assessment, 6*, 285-291.
- Rutter, M., Kim-Cohen, J., & Maughan, B. (2006). Continuities and discontinuities in psychopathology between childhood and adult life. *Journal of Child Psychology and Psychiatry, 47*, 276-295.

- Rutter, M., Moffitt, T. E., & Caspi, A. (2006). Gene-environment interplay and psychopathology: Multiple varieties but real effects. *Journal of Child Psychology and Psychiatry*, 47, 226-261.
- Salekin, R. T. (2002). Psychopathy and therapeutic pessimism: Clinical lore or clinical reality? *Clinical Psychology Review*, 22, 79-112.
- Salekin, R. T. (2006). Psychopathy in children and adolescents: Key issues in conceptualization and assessment. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 389-414). New York: Guilford Press.
- Salekin, R. T., Brannen, D. N., Zalot, A. A., Leistico, A. R., Neumann, C. S. (2006). Factor structure of psychopathy in youth: Testing the applicability of the new four-factor model. *Criminal Justice and Behavior*, 33, 135-157.
- Salekin, R. T., & Frick, P. J. (2005). Psychopathy in children and adolescents: The need for a developmental perspective. *Journal of Abnormal Child Psychology*, 33, 403-409.
- Salekin, R. T., Leistico, A. R., Trobst, K. K., Schrum, C. L., & Lochman, J. E. (2005). Adolescent psychopathy and personality theory – the interpersonal circumplex: Expanding evidence of a nomological net. *Journal of Abnormal Child Psychology*, 33, 445-460.
- Salekin, R. T., Neumann, C. S., Leistico, A. R., DiCicco, T. M., & Duros, R.L. (2004). Psychopathy and comorbidity in a young offender sample: Taking a closer look at psychopathy's potential importance over disruptive behavior disorders. *Journal of Abnormal Psychology*, 113, 416-427.
- Salekin, R. T., Rogers, R., & Sewell, K. W. (1996). A review and meta-analysis of the Psychopathy Checklist and Psychopathy Checklist--Revised: Predictive validity of dangerousness. *Clinical Psychology: Science and Practice*, 3, 203-215.
- Saltaris, C. (2002). Psychopathy in juvenile offenders: Can temperament and attachment be considered as robust developmental precursors? *Clinical Psychology Review*, 22, 729-752.
- Sanford, M., Boyle, M. H., Szatmari, P., Offord, D. R., Jamieson, E., & Spinner, M. (1999). Age-of-onset classification of conduct disorder: Reliability and validity in a prospective cohort study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38, 992-999.
- Sano, M., Devanand, D. P., Richards, M., Miller, L. W., Marder, K., Bell, K., Dooneief, G., Blysm, F. W., LaFleche, G., Albert, M., Folstein, M, & Stern, Y. (1995). A standardized technique for establishing onset and duration of symptoms of Alzheimer's disease. *Archives of Neurology*, 52, 961-966.
- Schlenker, B. R. (1980). *Impression management: The self-concept, social identity, and interpersonal relations*. Monterey, CA: Brooks/Cole Publishing.

- Schroeder, M. L., Schroeder, K. G., Hare, R. D. (1983). Generalizability of a checklist for assessment of psychopathy. *Journal of Consulting and Clinical Psychology, 51*, 511-516.
- Scott, E.S., Reppucci, N. D., & Wollard, J. L. (1995). Evaluating adolescent decision making in legal contexts. *Law and Human Behavior, 19*, 221-244.
- Seager, J. A. (2005). Violent men: The importance of impulsivity and cognitive schema. *Criminal Justice and Behavior, 32*, 26-49.
- Seagrave, D., & Grisso, T. (2002) Adolescent development and the measurement of juvenile psychopathy. *Law and Human Behavior, 26*, 219-239.
- Selman, R. L. (1980). *The growth of interpersonal understanding: Development and clinical analyses*. New York: Academic Press.
- Serin, R. C. (1991). Psychopathy and violence in criminals. *Journal of Interpersonal Violence, 6*, 423-431.
- Seto, M. C., Khattar, N. A., Lalumière, M. L., & Quinsey, V. L. (1997). Deception and sexual strategy in psychopathy. *Personality and Individual Differences, 22*, 301-307.
- Shaffer, D., Fisher, P. Dulcan, M. K., & Davies, M. (1996). The NIMH Diagnostic Interview Schedule for Children Version 2.3 (DISC-2.3): Description, acceptability, prevalence rates, and performance in the MECA study. *Journal of the American Academy of Child and Adolescent Psychiatry, 35*, 865-877.
- Shapiro, S. S., & Wilk, M. B. (1965). An analysis of variance test for normality. *Biometrika, 52*, 591-611.
- Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations: Uses in assessing interrater reliability. *Psychological Bulletin, 86*, 420-428.
- Silverthorn, P., Frick, P. J., Reynolds, R. (2001). Timing of onset and correlates of severe conduct problems in adjudicated girls and boys. *Journal of Psychopathology and Behavioral Assessment, 23*, 171-181.
- Singer, J. D., & Willett, J. B. (1991). Modeling the days of our lives: Using survival analysis when designing and analyzing longitudinal studies of duration and the timing of events. *Psychological Bulletin, 110*, 268-290.
- Singer, J. D., Willett, J. B. (1993). New methods for studying event occurrence: Using survival analysis in early intervention research. *Journal of Early Intervention, 17*, 322-339.
- Singh, S. P., Cooper, J. E., Fisher, H. L., Tarrant, C. J., Lloyd, T., Banjo, J., Corfe, S., & Jones, P. (2005). Determining the chronology and components of psychosis onset: The Nottingham Onset Schedule (NOS). *Schizophrenia Research, 80*, 117-130.

- Skeem, J. L., & Cauffman, E. (2003). Views of the downward extension: Comparing the youth version of the Psychopathy Checklist with the Youth Psychopathic Traits Inventory. *Behavioral Sciences and the Law, 21*, 737-770.
- Small, G. W., Kuhl, D. E., Fujikawa, D. G., & Ashford, J. W. (1988). Clinical characterization of Alzheimer's disease: Reliability of 'age at onset' and a new descriptor, 'age at shift.' *Journal of Geriatric Psychiatry and Neurology, 1*, 207-211.
- Smith, A. M., Gacono, C. B., & Kaufman, L. (1997). A Rorschach comparison of psychopathic and non-psychopathic conduct disordered adolescents. *Journal of Clinical Psychology, 53*, 289-300.
- Spain, S. E., Douglas, K. S., Poythress, N. G., & Epstein, M. (2004). The relationship between psychopathic features, violence, and treatment outcome: The comparison of three youth measures of psychopathic features. *Behavioral Sciences and the Law, 22*, 85-102.
- Stafford, E., & Cornell, D. G. (2003). Psychopathy scores predict adolescent inpatient aggression. *Assessment, 10*, 102-112.
- Stalenheim, E. G., & von Knorring, L. (1998). Personality traits and psychopathy in a forensic psychiatric population. *European Journal of Psychiatry, 12*, 83-94.
- Stanford, M. S., Ebner, D., Patton, J. H., & Williams, J. (1994). Multi-impulsivity within an adolescent psychiatric population. *Personality and Individual Differences, 16*, 395-402.
- Steinberg, L. (2002). The juvenile psychopath: Fads, fictions, and facts. In *National Institute of Justice Perspectives on Crime and Justice Lecture Series: Vol. 5* (pp. 35-64).
- Steinberg, L., & Cauffman, E. (1996). Maturity of judgment in adolescence: Psychosocial factors in adolescent decision making. *Law and Human Behavior, 20*, 249-272.
- Stevens, D., Charman, T., & Blair, R. J. R. (2001). Recognition of emotion in facial expressions and vocal tones in children with psychopathic tendencies. *Journal of Genetic Psychology, 162*, 201-211.
- Stickle, T. R., & Frick, P. J. (2002). Developmental pathways to severe antisocial behavior: Interventions for youth with callous-unemotional traits. *Expert Review of Neurotherapeutics, 2*, 511-522.
- Stipek, D. J., Gralinski, J. H., & Kopp, C. B. (1990). Self-concept development in the toddler years. *Developmental Psychology, 26*, 972-977.
- Stone, G. L. (1995). Review of the Hare Psychopathy Checklist – Revised. In J. C. Conoley & J. C. Impara (Eds.), *Twelfth measurements yearbook* (pp. 454-455). Lincoln, NE: Buros Institute.

- Taylor, J., Loney, B. R., Bobadilla, L., Iacono, W. G., & McGue, M. (2003). Genetic and environmental influences on psychopathy trait dimensions in a community sample of male twins. *Journal of Abnormal Child Psychology*, *31*, 633-645.
- Tinsley, H.E., & Weiss, D. J. (1975). Interrater reliability and agreement of subjective judgments. *Journal of Counseling Psychology*, *22*, 358-376.
- Tismer, K. G. (1985). Sex and age differences in personal and global future time perspectives: A replication. *Perceptual and Motor Skills*, *61*, 1007-1010.
- Tolan, P. H. (1987). Implications of age of onset for delinquency risk. *Journal of Abnormal Child Psychology*, *15*, 47-65.
- Toupin, J., Mercier, H., Dery, M., Cote, G., & Hodgins, S. (1995). Validity of the PCL-R for adolescents. *Issues in Criminological and Legal Psychology*, *24*, 143-145.
- Trevethan, S. D., & Walker, L. J. (1989). Hypothetical versus real-life moral reasoning among psychopathic and delinquent youth. *Development and Psychopathology*, *1*, 91-103.
- Valkenburg, P. M., Schouten, A. P., & Peter, J. (2005). Adolescents' identity experiments on the internet. *New Media and Society*, *7*, 383-402.
- Vaupel, J. W., Manton, K. G., & Stallard, E. (1979). The impact of heterogeneity in individual frailty on the dynamics of mortality. *Demography*, *16*, 439-454.
- Verstraeten, D. (1980). Level of realism in adolescent future time perspective. *Human Development*, *23*, 177-191.
- Viding, E., Blair, R. J. R., Moffitt, T. E., & Plomin, R. (2005). Evidence for substantial genetic risk for psychopathy in 7-year-olds. *Journal of Child Psychology and Psychiatry*, *46*, 592-597.
- Vincent, G. M. (2006). Psychopathy and violence risk assessment in youth. *Child and Adolescent Psychiatric Clinics of North America*, *15*, 407-428.
- Vincent, G. M., & Grisso, T. (2005). A developmental perspective on adolescent personality, psychopathology, and delinquency. In T. Grisso, G. Vincent, & D. Seagrave (Eds.), *Mental health screening and assessment in juvenile justice* (pp. 22-43). New York: Guilford Press.
- Vincent, G. M., & Hart, S. D. (2002). Psychopathy in childhood and adolescence: Implications for the assessment and management of multi-problem youths. In R. R. Corrado (Ed.), *Multi-problem violent youth: A foundation for comparative research on needs, interventions and outcomes* (pp. 150-163). Amsterdam: IOS Press.
- Vincent, G. M., Vitacco, M. J., Grisso, R., & Corrado, R. R. (2003). Subtypes of Adolescent Offenders: Affective Traits and Antisocial Behavior Patterns. *Behavioral Sciences and the Law*, *21*, 695-712.

- Vitacco, M. J., & Vincent, G. M. (2006). Understanding the downward extension of psychopathy to youth: Implications for risk assessment and juvenile justice. *International Journal of Forensic Mental Health, 5*, 29-38.
- Vitale, J. E., Newman, J. P., Serin, R. C., & Bolt, D. M. (2005). Hostile attributions in incarcerated adult male offenders: An exploration of diverse pathways. *Aggressive Behavior, 31*, 99-115.
- Waldman, I. D., & Rhee, S. H. (2006). Genetic and environmental influences on psychopathy and antisocial behavior. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 205-228). New York: Guilford Press.
- Weiler, B. L., & Widom, C. S. (1996). Psychopathy and violent behavior in abused and neglected young adults. *Criminal Behavior and Mental Health, 6*, 253-271.
- Wellman, H. M., Cross, D., & Watson, J., (2001). Meta-analysis of theory-of-mind development: The truth about false belief. *Child Development, 72*, 655-684.
- White, J., Moffitt, T. E., Earls, F., Robins, L. N., & Silva, P. A. (1991). How early can we tell? Preschool predictors of boys' conduct disorder and delinquency. *Forum on Corrections Research, 3*.
- Widiger, T. A., Cadoret, R., Hare, R. D., Robins, L., Rutherford, M., Zanarini, M., Alterman, A., Apple, M., Corbitt, E., Forth, A. E., Hart, S. D., Kultermann, J., Woody, G., & Frances, A. (1996). DSM-IV antisocial personality disorder field trial. *Journal of Abnormal Psychology, 105*, 3-16.
- Widiger, T. A., & Lynam, D. R. (1998). Psychopathy and the five-factor model of personality. In T. Millon, E. Simonsen, M. Birket-Smith, & R. D. Davis (Eds.), *Psychopathy: Antisocial, criminal, and violent behavior* (pp. 171-187). New York: Guilford Press.
- Widom, C. S. (1978). An empirical classification of female offenders. *Criminal Justice and Behavior, 5*, 35-52.
- Willett, J. B., & Singer, J. D. (1993). Investigating onset, cessation, relapse, and recovery: Why you should, and how you can, use discrete-time survival analysis to examine event occurrence. *Journal of Consulting and Clinical Psychology, 61*, 952-965.
- Willett, J. B., Singer, J. D., & Martin, N. C. (1998). The design and analysis of longitudinal studies of development and psychopathology in context: Statistical models and methodological recommendations. *Development and Psychopathology, 10*, 395-426.
- Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition, 13*, 103-128.

	PCL:YV Item	Indicator Endorsement		Median age onset
		%	<i>n</i>	
Smoking cigarettes	3	81	95	12
Crazy/dangerous activities	3	93	109	12
Really hurt someone	10	97	113	12
Using others for things	9	13	15	12
Everything I do is justified	16	33	39	13
Feel smarter than others at school	2	26	30	13
Expelled from school	15	82	96	13
Better at things than others	2	66	77	13
Fail or repeat a grade level	15	44	52	13
Hurt others without feeling bad	6	81	95	13
Getting others to do homework	9	28	33	13
Others people exaggerate hurt	6	61	71	13
Hurt people more than necessary	8	44	51	13
Smooth talker	1	74	86	13
Skip school	15	94	110	13
My problems are not my fault	16	12	14	13
My punishments are too harsh	16	35	41	13
Reading others' weaknesses	5	64	75	13
Bored in relationships	17	56	65	13
Drop out of school	13	54	85	13
Drop out of sports teams	13	40	47	13
Drug/alcohol use at home	3	39	45	13
Sex (<i>M</i> =11.3 partners)	11	97	113	13
Cheating on partner (<i>M</i> =3.9x)	11	64	75	13
Cheating the system	5	64	75	13
Conning/manipulating	5	63	74	13
Supporting self thru crime	9	86	100	13
Drugs/alcohol are problem	3	51	60	13
Kicked out of home	15	61	71	13
Breaking promises to others	15	45	53	13
One night stands	11	66	77	13
Steady job	--	76	89	14
Simultaneous dating	11	41	48	14
Using hard drugs	3	89	104	14
Stealing from work	8	12	14	14
Unprotected sex	15	63	74	14
Impulsively quitting a job	14	35	41	14
Physical fights at work	10	7	8	15
Lying to the boss	4	21	25	15
Incomplete work	15	16	19	15
Challenging the boss	2	11	13	15
Using drugs/alcohol at work	15	38	44	15
Fired from a job	15	22	26	15
Late for work	15	24	28	15
Getting others to do work	9	10	12	15
Sleeping at work	15	7	8	15

Appendix B

Variances and Normality Tests for Age of Onset Ratings

	<i>n</i>	Variance		<i>W</i>	
		Rater 1	Rater 2	Rater 1	Rater 2
Impression Management					
Score of 1	19	10.5	13.5	.90	.84*
Score of 2	7	2.2	2.2	.85	.94
Grandiose					
Score of 1	32	10.2	12.8	.94	.98
Score of 2	12	1.4	5.3	.87*	.90
Stimulation Seeking					
Score of 1	34	7.4	10.2	.93*	.92*
Score of 2	29	3.7	2.8	.76*	.95
Pathological Lying					
Score of 1	33	11.3	12.4	.92*	.94*
Score of 2	9	3.9	13.5	.83*	.81*
Manipulation					
Score of 1	33	7.1	10.1	.96	.95
Score of 2	20	2.2	3.9	.92	.92
Lacks Remorse					
Score of 1	33	11.7	14.6	.91*	.88*
Score of 2	20	12.5	14.6	.75*	.90*
Shallow Affect					
Score of 1	28	13.8	18.9	.93	.91*
Score of 2	6	20.3	19.4	.87	.82
Callous/Lacks Empathy					
Score of 1	34	8.8	10.3	.88*	.86*
Score of 2	26	9.5	12.2	.76*	.92
Parasitic Orientation					
Score of 1	30	6.7	4.4	.83*	.94
Score of 2	13	2.1	2.4	.91	.89
Poor Anger Control					
Score of 1	34	7.4	7.6	.91*	.89*
Score of 2	24	12.7	10.8	.91*	.89*
Impersonal Sexual Behavior					
Score of 1	29	6.5	6.9	.79*	.80*
Score of 2	14	2.8	2.6	.91	.94
Serious Behavior Problems					
Score of 1	34	8.4	9.8	.83*	.85*
Score of 2	31	6.0	8.8	.96	.95
Lacks Goals					
Score of 1	32	3.7	4.0	.93*	.95
Score of 2	16	3.2	3.6	.88*	.93
Impulsivity					
Score of 1	34	12.3	16.5	.90*	.93
Score of 2	19	11.3	9.5	.85	.91
Irresponsibility					
Score of 1	34	10.1	12.5	.90	.91*
Score of 2	27	2.1	3.5	.93	.90*

	<i>n</i>	Variance		<i>W</i>	
		Rater 1	Rater 2	Rater 1	Rater 2
Failure to Accept Responsibility					
Score of 1	34	9.9	12.9	.97	.96
Score of 2	22	5.4	10.7	.64*	.76*
Unstable Interpersonal Relationships					
Score of 1	31	13.8	14.7	.81*	.92*
Score of 2	13	8.7	10.7	.92	.77*

Note. *W* = Shapiro-Wilk statistic testing the null hypothesis of normality with 1 degree of freedom (Shapiro & Wilk, 1965).

* $p < .05$.