

MEASURING PSYCHOPATHY TRAITS AND ANTISOCIAL BEHAVIORS IN  
THREE GROUPS OF MALE ADOLESCENT SEX OFFENDERS AND MALE NON-  
SEXUAL DELINQUENTS

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## **Dedication**

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## Abstract

The main goal of this study was to determine if there are differences in four groups of male adolescents (i.e. child sex offenders, peer/adult sex offenders, crossover sex offenders, and non-sex delinquents) in their levels of psychopathy traits (i.e. grandiosity, impulsivity, lack of empathy, interpersonally exploitative, and risk taking) and antisocial behaviors. The non-sex delinquents group was found to have significantly higher levels of grandiosity and lack of empathy than the three sex offender groups. The three sex offender groups were found to have significantly higher levels of antisocial behavior than the non-sex delinquent group. A confirmatory factor analysis using the *Multidimensional Inventory of Development, Sex and Aggression* (MIDSA; MIDSA Clinical Manual, 2007) scales for psychopathy traits and institutional record review measures of antisocial behavior provided no evidence for adequate fit for the two, three, or four-latent factor models of psychopathy.

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## Chapter One: Introduction

The following chapter describes why it is important to study adolescent sex offenders. It also gives an overview of how problem behaviors are conceptualized in adolescent males. Methods of conceptualization are then described within the context of adolescent sex offending. Terms relevant to the study are discussed. Psychopathy is a construct that is discussed in some detail because it may be helpful for conceptualizing problem behaviors in adolescent males. The purpose of the study is proposed at the end of the chapter.

To become more successful at preventing and treating adolescent sex offending behavior researchers must continue to broaden their understanding of the nuances of this behavior and its etiology. To date much of the research on sexual offending behavior has focused on understanding adult perpetrators. This information does not necessarily inform our understanding of sexually aggressive behaviors in young people because it does not recognize the malleability of adolescent character and behavior (Prentky & Righthand, 2003). However, there has been a recent shift toward understanding the etiology of sexual offending in young males (Barabee & Marshall, 2008; Caldwell, 2009; Deversa & Knight, 2007; Hickey, McCrory, Farmer, & Vizard, 2008; Knight & Knight-Sims, 2005; Miner, Robinson, Knight et al., 2009). These models give insight into the possible precursors to sexually aggressive behaviors in young people. While these models provide a useful heuristic for understanding the factors associated with adolescent sexual offending behaviors, they leave room for the additional refinement of this knowledge through further delineating the subgroups that exist within the greater adolescent male sex offending population.

Sexually aggressive behaviors in adolescents are committed for a variety of reasons by a group of offenders who are quite heterogeneous in nature (Knight, Prentky, & Cerce, 1994; van Wijk, Vermeiren, Loeber, et al. 2006). Issues of nomenclature contribute to the ways researchers understand and theorize what may be the most salient factors to understanding adolescent sex offending. These factors also contribute to the way clinicians conceptualize efficient treatment programs and the choices criminal justice officials make regarding sentencing and supervision. Because of its complex nature, it is important that researchers continue to unravel and define the critical factors relevant to adolescent sexual aggression. More recently, one factor that has gained the attention of researchers is the degree to which adolescent sex offending behavior should be either conceptualized as an acute period of inappropriate behavior or as the precursor to potentially persistent and pervasive antisocial behaviors.

### **Conceptualizing Problem Behaviors in Adolescents - Moffitt's Model: Adolescence Limited and Life-Course Persistent Antisocial Behavior in Males**

When conceptualizing the development of male adolescent problem behaviors, a model that is often cited is Moffitt's (1993) developmental model that describes young people as engaging in inappropriate behaviors that are either adolescence limited or life-course persistent. This model suggests that the majority of adolescent boys engage in various forms of antisocial behavior. Moffitt describes this behavior as being significantly influenced by peers and allowed by Western societies where roles entailing responsibility and accountability are not prescribed for young people. These antisocial behaviors tend to fade away with age because adolescent boys are expected to be responsible, held accountable, and develop the ability to regulate inappropriate

behaviors. However, not all boys make this transition successfully. Moffitt (1993) describes a small group of adolescent boys as following a persistent life-course path of antisocial behaviors. The etiology of life-course persistent antisocial behavior is described as coming from the interaction between the child and the environment that overtime takes its toll by exacerbating academic and interpersonal problems. Moffitt proposed that people who engage in life-course persistent antisocial behaviors are initially hindered by deficits in cognitive functioning, self-regulation, and temperament, and that these factors then interact with challenging environmental variables. For example, these vulnerabilities (i.e. cognitive deficits, inability to regulate behaviors, challenging personality traits) have been shown to increase the likelihood of criminal behavior when factors such as parental mental health, chemical abuse problems, harsh and inconsistent discipline by caregivers, and/or limited or loss of access to their primary caregiver act to further undermine healthy development (Moffitt & Caspi, 2001). More recent research by Silberg, Rutter, Tracy et al. (2007) confirms Moffitt's theory and has attributed this pattern of behavior to specific genetic and environmental prerequisites. Without early interventions that address both childhood vulnerabilities and parenting deficits the antisocial behaviors that develop in youth are believed to be quite difficult to ameliorate in adult males (Fite, Stoppelbein, & Greening, 2009; Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007).

### **Applying Moffitt's Model to Male Adolescent Sex Offenders**

The adolescence-limited or life-course persistent model of antisocial behavior is used to conceptualize research that emphasizes both environmental and genetic precursors to adolescent problem behaviors (Caprara, Dodge, Pastorelli, & Zelli, 2007;

Caspi, McClay, Moffitt, Mill, Martin, et al. 2002; Dodge, 2008). Recently, this model has also found its place in adolescent sex offender research (e.g. McCrory, Hickey, Farmer, & Vizard, 2008). An understanding of sexual offending behavior as either a transient conduct problem or as part of a persistent constellation of antisocial traits can dramatically change the way researchers and counselors conceptualize this behavior. Specifically, treatment duration, therapeutic techniques, and follow-up/aftercare will vary significantly if offending behaviors are conceptualized as either acute or persistent. Similarly, a more refined understanding of this behavior will be necessary for the advancement of related research.

Some researchers have emphasized a link between adolescent sex offending and more general conduct problems such as aggression toward peers, disruptive school behavior, and involvement in non-sexual crimes (Hunter, Figueredo, Becker, & Malamuth, 2007; Johnson & Knight, 2000; Knight & Sims-Knight, 2003; van Wijk et al., 2005). This research gives evidence that male juvenile sexual offending may be a subset of behaviors related to the more pervasive behavioral problems indicative of life-course persistent antisocial behaviors. France and Hudson (1993) found that juvenile sex offenders often have a history of committing other non-sexual acts of delinquency. Furthermore, it is much more likely that male adolescent sex offenders will reoffend non-sexually (non assaultive and assaultive offences) rather than sexually (Caldwell, 2002, 2009; Vandiver, 2006). Correspondingly, many young sex offenders commit their offences after a history of repeated non-sexual offending (Elliott, Browne, & Kilcoyne, 1995). Finally, many of the variables that predict future sex offending behavior, such as age of offense, criminal history, and antisocial personality traits also predict future

delinquency (Craissati & Beech, 2006; Daversa & Knight, 2007; DeLisi, Beaver, Wright & Vaughn, 2008). Thus, there is evidence that adolescent sex offending in boys is a manifestation of more pervasive behavioral problems. These behavioral problems may or may not be related to future sexual offending and will often continue in the future (Caldwell, 2002, 2009; Vandiver, 2006).

However, there is also evidence that male adolescent sex offending behavior may not always be related to pervasive antisocial traits (Seto & Lalumière, 2006). In adult populations there is evidence that sex offenders who have victimized adults are quite similar to adult non-sex criminal offenders with regard to history of antisocial behaviors and attitudes (Lalumière, Harris, Quimsey, & Rice, 2005). However, adult sex offenders who target children tend to show pedophilic interests not related to more pervasive antisocial behaviors (Quinsey & Lalumière, 1995). A meta-analysis performed by Seto and Lalumière (2006) found that male adolescent sex offenders often had significant histories of criminal and other conduct problems but in general showed lower levels of non-sex problem behaviors than did non-sex delinquents. Their review also found that juveniles who sexually targeted children had fewer conduct problems than those who offended sexually with peers or adults. However, very few of the studies that Seto and Lalumière reviewed were designed to study differences among types of adolescent sex offenders, and instead were developed to compare adolescent sex offenders to non-sexual delinquents. In aggregate, these studies give evidence that, in some cases, sexual offending behavior may be distinct from a larger syndrome of antisocial juvenile behaviors, especially when juvenile male sexual offenders target only children.



In summary, there are currently two lines of thought that drive male adolescent sex offender research. One line of thought describes adolescent sex offenders as being quite similar to non-sexual offending adolescent delinquents because both engage in victimizing behaviors and have similar antisocial tendencies. The other line of thought describes sexual offending as a phenomenon that, for some adolescents, may have less to do with pervasive antisocial tendencies and more to do with other factors such as low self-esteem and/or social isolation (Burton, 2008; Miner & Munns, 2005).

Current research gives evidence that many male adolescents who have engaged in sexual offending behavior also show high rates of recidivism for non-sexual offending (Caldwell 2009). One way to conceptualize the persistence of sexual and non-sexual offending behaviors in adolescents is to view the behaviors as being driven by personality traits which may be more resistant to therapeutic interventions (Knight & Sims-Knight, 2005). Personality traits related to the construct of psychopathy appears well suited to measure the presence of more persistent and pervasive antisocial tendencies that appear to be present in some of the young people who engage in adolescent sex offending behavior.

This study will attempt to determine if male adolescents who engage in sexually aggressive behaviors and in non-sexual delinquency differ on measures of psychopathy traits and antisocial behavior. The independent variables for this study will be the four adolescent groupings: child only sex offenders, peer/adult sex offenders, crossover (i.e. both child and peer/adult) sex offenders, and non sexual delinquents. The dependent variables for this study include scores on five scales to measure the psychopathy traits

of grandiosity, impulsivity, lack of empathy, interpersonally exploitative, and risk taking and a measure of antisocial behaviors.

### **Definition of Terms**

The term psychopathy trait is used throughout this study. Psychopathy is used to describe individuals who are callous, unemotional, self-centered, and charming, but otherwise are perceived to have good mental health (Cleckley, 1988) while a trait is described as an individual characteristic that distinguishes somebody (Funder, 2001). Psychopathy is not a clinical term in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) or the International Classification of Diseases (ICD-10). However, some believe it should be included in the DSM-V (Coid & Yang, 2008). The nearest equivalent to psychopathy in the DSM-IV is Antisocial Personality Disorder, while the ICD-10 uses the term sociopathy or Dissocial Personality Disorder (Arrigo, 2001). Antisocial Personality Disorder reflects a limited set of indicators (i.e. behaviors) of antisocial conduct while psychopathy attempts to assess less-transient interpersonal, affective, and psychological traits that contribute to antisocial behavior (Hare, Hart, & Harpur, 1991).

In clinical and research settings, psychopathy is used to describe children and adults who show a lack of remorse. In addition, they tend to be manipulative, egocentric, superficially charming, impulsive, unreliable, and express shallow affect (Hare, 1991; Lynam 1997). Psychopathy is believed to be composed of a combination of common personality traits that include low Agreeableness, low Conscientiousness and high Neuroticism (Lynam, Caspi, Moffitt, Raine, Loeber, & Stouthamer-Loeber, 2005). Psychopathy should not be confused with the term psychopathology which

refers to either the study of mental illness or mental distress, or the manifestation of behaviors and experiences which may be indicative of mental illness or psychological impairment, such as abnormal, maladaptive behavior or mental activity (Merraim-Webster, 2010). Psychopathy traits in this study will include and are defined as: Grandiosity, the expression of exaggerated self-worth; Impulsivity, the tendency to act on sudden urges or desires and to engage in irresponsible behavior; Lack of Empathy, the inability to identify with and understand somebody else's feelings or difficulties; Interpersonally Exploitative, the tendency to manipulate others for personal gain; and Risk-Taking, the need for high levels of stimulation.

Male participants in this study fall into four categories based on the characteristics of their commitment crimes and available histories: 1) child only sex offenders are adolescents who have abused only victims who were 12 years old or younger and at least 3 years younger than the male participant at the time of the offence, 2) peer/adult sex offenders were adolescents who have abused only victims who were no more than 3 years younger or were older than they at the time of commission of their crimes, 3) crossover sex offenders were adolescents who committed crimes against both children and peers/adults, and 4) non-sex delinquents were male adolescents who had been adjudicated delinquent or were under probation supervision for a non-sexual crime involving a person or property and had no indications in official records or by self-report of rape or child molesting behaviors.

Behaviors of interest in this research study are often discussed as antisocial or sexually aggressive in nature. Antisocial behavior refers to actions that deviate significantly from established social norms. However, behavior that fits within this

definition may be quite appropriate and beneficial considering the social environment in which the child lives (Fontaine, Yang, Dodge, Bates, & Pettit, 2008). Antisocial personality disorder (ASPD) is defined by the American Psychiatric Association's *Diagnostic and Statistical Manual* as "...a pervasive pattern of disregard for, and violation of, the rights of others that begins in childhood or early adolescence and continues into adulthood" (American Psychiatric Association, 2000, pp 645-650). In this study the terms sexual aggression and sex offending behavior are used interchangeably to mean a range of forced sexual contact activities, such as rape (unwanted sexual intercourse through the use or threat of physical violence), unwanted sexual intercourse through the use of verbal pressure, and other unwanted sexual acts, such as inappropriate touching of the breasts, buttocks, or genital area.

### **Adolescent Psychopathy**

**Measurement of Psychopathy in Young People.** There is a growing body of research using the construct of psychopathy with adult sex offenders (Knight, Daversa, & Sims-Knight, 2007; Langton, Barbaree, Harkins, & Peacock, 2006; Olver & Wong, 2006; Walters, Knight, & Thornton, 2009). However there is much less research of psychopathy related to adolescent male sex offending, with most of the research being done to determine if this construct will effectively predict recidivism (Gretton, Hare, & Catchpole, 2004; Gretton, McBride, Hare, O'Shaughnessy, & Kumka, 2001; Olver, Stockdale, & Wormith, 2009). To date there is little evidence that psychopathy has been used as a construct to understand differences among the different type of adolescent sex offenders. Butler and Seto (2002) believed that further research using antisocial indicators could further elucidate the etiology and development of sexual

offending. Measures of psychopathic traits appear to be distinct from other antisocial indicators because they focus on the affective, interpersonal, and motivational aspects of behaviors rather than on behaviors in isolation of what may be driving them (Frick, 2002; Kazdin, 1997; Salekin, 2006). Recently there has been controversy surrounding the overall construct of psychopathy with some considering antisocial behavior, most commonly defined by documented criminal acts, an essential component of the construct (e.g. Hare & Neumann, 2010). On the other hand, some believe that a history of antisocial behavior is not an essential feature of psychopathy, and that many individuals who have high levels of psychopathy traits do not necessarily have a history of documented antisocial acts (Skeem & Cooke, 2010). Psychopathy traits appear to be related to social and emotional processing deficits often found in youth who engage in antisocial behaviors (Salekin, 2008). Remediating such deficits may require unique, structured, and multifaceted treatment interventions that emphasize prosocial models and demonstrate how non-criminal ways of thinking can provide individual benefits (Loney, Frick, Clements, Ellis, & Kerlin, 2003; Lösel, 1998; Lynam et al. 2007; Rice et al. 1992; Vitale, et al. 2005). Furthermore, Hare (1996) concluded that insight-oriented treatment, a therapeutic modality that has been commonly used to treat psychopaths in the past and is still practiced today, will likely fail to change a psychopath's self-awareness. Hare has argued that this type of treatment may actually augment an adolescent or adult's ability to manipulate and deceive others because they become more perceptive to the needs and weaknesses of others.

In the 1990's, advances in the measurement of adult psychopathy and evidence of its ability to predict criminal recidivism led researchers to question whether these

measures could be applied to young people. Despite many studies showing the validity and reliability of instruments that measure child and adolescent psychopathy (e.g. Eden, Campbell, & Weir, 2007) and studies that show the predictive utility of this construct (e.g. Lynam, Loeber, & Stouthamer-Loeber, 2008), using the term psychopathy with young people is controversial (Petrila & Skeem, 2003; Seagrave & Grisso, 2002; Skeem & Petrila, 2004). Much of the controversy lies in the idea that many of the traits associated with psychopathy such as impulsivity, parasitic lifestyle, and irresponsibility are age-appropriate behaviors in adolescents (Eden, Skeem, Cruise, & Cauffman, 2001). Similarly, there are concerns that the term psychopathy connotes a stable, genetically-determined personality pattern that is highly resistant to psychological interventions (Seagrave & Grisso, 2002). Also, there are concerns that the use of the term psychopathy outside of the field of mental health may encourage excessively punitive sentencing in correctional settings (Edens, Guy, & Fernandez, 2003; Petrila & Skeem, 2003) or possibly exclude children from special education programs (Frick & Morris, 2004). When using the term psychopathy it must be acknowledged that some level of irresponsibility, egocentricity, and shortsightedness represents age-appropriate, normative behavior for young males that are transient and normative (Seagrave & Grisso, 2002; Skeem & Cauffman, 2003). However, Salekin and Frick (2005) describe that most forms of mental health symptoms are variants of normative behavior. They also believe that it would be impossible to develop indicators for any type of clinical behavior without measures that are related in some way to normative development and normative personality traits. It is believed that true psychopathy is present in about

25% for institutionalized male adolescent offenders and about 10% for male adolescents on probation (Gretton, Hare, & Catchpole, 2004).

There are also concerns that psychopathy may not be as stable in young males as it is in adults (Hart, Watt, & Vincent, 2002; Seagrave & Grisso, 2002). However, even in adult males there is only limited data suggesting the stability of this construct over significant periods of time (Frick, Kimonis, Dandreaux, & Farrell, 2003; Salekin, 2006). This concern implies that psychopathy is a meaningful construct only if it is enduring in nature. However, Roberts and DelVecchio (2000) assert that most measures of personality show much more modest stability in childhood and adolescence than they do in adulthood but that these construct are still quite important to our understanding of adaptive and maladaptive behaviors and overall mental health.

A final concern with the use of the term psychopathy is that psychopathy is likely to be comorbid with other childhood mental health disorders (i.e. Oppositional Defiant Disorder, Conduct Disorder, Attention Deficit/Hyperactive Disorder). Childhood mental health disorders generally have more overlap with one another than do adult disorders (Salekin & Frick, 2005). Conceptually, psychopathy is distinct from other disruptive disorders because it focuses on the affective, interpersonal, and motivational aspects of disruptive behaviors (Frick, 2002; Kazdin, 1997; Salekin, 2009). For these reasons, it is believed that psychopathy may be used to better define more homogenous subgroups of delinquent or conduct disordered young males (Salekin & Frick, 2005). For example, if a body of research showed that the presence of psychopathic traits defined an important subgroup of young males with behavioral problems, this could signal that the presence of psychopathy could be included as

diagnostic criteria for the subtype of a disorder (Kazdin, 1997; Lahey & Waldman, 2003; Salekin, 2006). It is hoped that by using measures of psychopathy traits and antisocial behavior this study will help determine if there are more homogeneous subgroups within the broad heterogeneous group of adolescent male sex offenders.

The Big Five personality traits of openness, conscientiousness, extroversion, agreeableness, and neuroticism (McRae & Costa, 1997) have been used to help better conceptualize adolescent male psychopathy. Lynam et al. (2005) found that aspects of male adolescent psychopathy that were related to selfishness, callousness, and interpersonal exploitation were strongly associated with the Big Five personality dimension of low agreeableness. Lynam and colleagues also found that the aspects of psychopathy associated with impulsivity, instability, and antisocial behavior were associated with low agreeableness, low conscientiousness, and high neuroticism. Similar results were found by Salekin, Leistico, Trobst, Schrum, and Lochman (2005). These authors believe that their results lend support to the idea that psychopathy represents the specific presentation of the traits found in general personality functioning and in turn these results add to the evidence for the construct validity of psychopathy. There is also evidence that adolescents with psychopathy traits may lack the response specificity that is necessary for developing social relationships. Vitale et al. (2005) found that adolescents who scored high on measures of psychopathy, but were not yet engaged in high levels of antisocial behaviors, were found to have deficits in information processing that would likely leave them vulnerable to poor socialization and ineffective behavioral self-regulation. The authors feel these results speak to the



specific deficits that can be targeted by mental health practitioners to support adolescents who show psychopathy traits in therapeutic settings.

Another compelling reason to look at the psychopathy traits in adolescent male sex offenders comes from the information on psychopathy as related to adult male sex offending. Studying adult male sex offender populations, researchers found the rates of psychopathy to be higher among male rapists than male child molesters (Brown & Forth, 1997). Male adult rapists have been shown to be at least three times more likely to be classified as psychopaths as adult child sex offenders (Seto & Barbaree, 1999). According to Porter et al. (2000), the base rate for psychopathy in adult male rapists has been calculated to be approximately 35% while it has been calculated to be between 6% and 10% in adult child sex offenders; the base rate of psychopathy for adult crossover sex offenders (i.e. offending against both children and adults) has been calculated to be 65%.

Hunter, Hazelwood, and Slesinger (2000) found that male adolescent peer/adult sex offenders were more likely to engage in future violent offending (non sexual and sexual) when compared with adolescent child sex offenders. Furthermore, a meta-analysis performed by Seto and Lalumière (2006) found that male juveniles who targeted children had fewer conduct problems than those that offended with peers/adults. These results speak to the idea that male adolescent child-only sexual offending may be a less pervasive pattern of antisocial behavior that would be predicated on limitations in social skills and social self-efficacy (Burn & Brown, 2006). Further research using psychopathy traits could deepen this understanding about how

male adolescent sex offender groups may differ and inform how to best prevent and treat specific adolescent sex offender subgroups.

### **Purpose of the Study**

The purpose of the proposed study is to determine if male adolescents who engage in sexually aggressive behaviors and in non-sexual delinquency differ in their levels of psychopathy traits and antisocial behaviors. These traits (grandiosity, impulsivity, lack of empathy, interpersonally exploitative, and risk-taking) and antisocial behavior were chosen for this study because they reflect measures found in other models of adolescent psychopathy validated through confirmatory factor analysis. These models included Neumann, Kosson, Forth, and Hare (2006) four factor model, Andershed, Köhler, Eno Louden, and Hinrichs (2008) three factor model, and the Harpur, Hare, and Hakistan (1989) two factor model. Most three factor models (i.e. Andershed et al. 2008) do not use antisocial behavior to measure psychopathy (Skeem & Cooke, 2010).

There is evidence that different types of adolescent sex offenders and non-sex delinquents may engage in illegal behavior for different reasons (Seto & Lalumière, 2006). Differences in levels of psychopathy traits would suggest characterological distinctions among these groups which inform better decisions for treatment and public safety. However, to date there is no research attempting to understand how these three groupings of adolescent male sex offenders differ in terms of psychopathy traits. The main research question to be answered in this study is: are there differences in the level of psychopathy traits (grandiosity, impulsivity, risk-taking, interpersonally exploitative, and lack of empathy) and antisocial behaviors among four groups of male adolescents

(child only sex offenders, peer/adult sex offenders, crossover sex offenders, and non-sex delinquents).

In conclusion, continued research appears necessary to improve both prevention and therapeutic interventions associated adolescent sex offending (Butler and Seto, 2002). Moffitt's model predicts that most antisocial behavior in adolescents will be transient in nature; however, for some these behaviors may persist and become resistant to interventions (Moffitt & Caspi, 2001). Psychopathy is a construct that may help researchers and practitioners determine which adolescents need the most intensive interventions (Gretton, Hare, & Catchpole, 2004). This study attempts to capture how various subgroups of adolescent sex offenders and non-sex delinquents may differ on various psychopathy traits.

The following chapter will give an overview of literature relative to this study. Specifically, adolescent behavior will be discussed within the context of behavioral genetics, neuropsychological models, attachment theory, and ecological systems theory. A review of research relevant to adolescent sex offending and adolescent psychopathy will also be presented. This chapter will be followed by chapters outlining the methodology used for this study, the results, and a discussion based on these results.

## **Chapter Two: Review of the Literature**

The following literature review gives an overview of relevant research and theory regarding the origin of both adaptive and maladaptive adolescent behavior. The research related to maladaptive behaviors describes proposed etiologies for behavior problems associated with sex offending, delinquency, and psychopathy such as the ability to regulate behaviors and emotions, anticipate consequences, empathize with others, and establish supportive interpersonal relationships. A review of literature specific to adolescent sex offending and adolescent psychopathy is also presented. This review will give background information on these areas of research as well as speak to what questions remain unanswered concerning adolescent sex offenders and adolescents showing psychopathy traits.

### **Models and Theories of Adolescent Development**

Isaac Newton remarked that “If I have seen further it is by standing on the shoulders of Giants.” Many of the theories discussed in this paper have their origins in the works of the fore fathers of psychology. The deterministic nature of Freud’s work (Gay, 1988), and his emphasis on the mother-child relationship, can be seen as a precursor to the biological and attachment models of human behavior. Similarly, Vygotsky’s (Veresov, 1999) emphasis on how culture and interpersonal communication (particularly by parents) can be seen in both ecological systems theories and attachment theory. In some ways the newer theories of adolescent development are not really new at all but rather a modification of previous work. Still, other theories are conspicuously missing in the current literature when conceptualizing adolescent development. Erikson’s ideas about adolescence being a stage when one must develop a sense of self

and personal identity to avoid role confusion and a weak sense of one's nature is often acknowledged in models of healthy development, but is seldom applied to models of problem behavior. Similarly, Adler's emphasis on the prevention of mental health problems through societal initiatives to better educate parents is seldom acknowledged as a way to support successful psychological development.

To give an overview of adolescent problem behaviors, behavioral genetic and neurobiological models are described as is attachment theory and ecological systems theory. Links are made to adolescent sex offending behavior when warranted. These models represent how adolescent behavior is most often conceptualized in current research. Neurobiological and behavioral genetic models continue to gain an increasing influence in psychology. They have the potential to enhance the efficiency and gains seen from counseling and psychotherapy by granting a more detailed understanding of the etiology of mental health problems. For this reason, this information will likely change how future prevention and therapeutic interventions are developed and implemented. After decades of study, attachment theory remains a relevant and viable theory because it serves as an interface between nature and nurture (Rutter, 1995). Its emphasis on the interplay between temperament and caregiver support has a logical appeal that continues to inform many studies in psychology (Kerns, 2008; Kobak & Madsen, 2008). Bronfenbrenner's (1979) Ecological Systems Theory is highlighted because it represents a comprehensive social-ecological theory. Its strengths include that it acknowledges the importance of an individual's inherent biology and their interactions with primary caregivers while also acknowledging the influence of poverty, discrimination, societal norms, and community support.

**Behavioral genetic models.** Adolescence is a time of significant psychological change, increased autonomy, and a time when the expression of dis-inhibited behavior is the norm (Lerner & Galambos, 1998; Moffitt, 1993). Adolescents engaging in antisocial behavior, including sexual offending, take a significant toll on individuals, communities, and societies. In an attempt to understand and prevent the problem of antisocial behaviors, such as sex offending, it is common for social scientist to investigate the environmental and/or systemic factors that influence such behavior. These approaches have been used to inform the majority of prevention and recidivism interventions with often less than impressive results (Moffitt, 2005). Moffitt believes that the ineffectiveness of these interventions is related to basing interventions on established risk factors for the development of certain behaviors (e. g. poor parenting, social class) but not basing them on the actual etiology of the behaviors. There is a significant body of research (Hicks et al., 2007; Krueger, Hicks et al., 2002; Rowe & Osgood, 1984; Young, Stallings, Corley, Krauter, & Hewitt, 2000) that points to the influence of genetics on the emergence of antisocial behaviors and that antisocial behaviors appear to be strongly associated with adolescent sex offending (White, Cruise, & Frick, 2009). This research also describes how genetics and the environment interact to drive the development of antisocial behaviors (Cadoret, 2009). An understanding of the relative influence of genetics is essential for social scientists, policy makers, and medical researchers if they hope to limit the occurrence and severity of antisocial behaviors (Moffitt, 2005). Behavioral genetics offers the potential to understand the degree to which antisocial behavior is related to genetic endowment and

holds the potential to pinpoint the environmental stipulations necessary for the expression of antisocial behaviors.

A common technique to calculate the inheritance of behavior relative to environmental influences are classic twin studies that contrast the differences between monozygotic (i.e. identical) twins and dizygotic (i.e. fraternal) twins within a family compared to differences observed between families. This technique is used to estimate the percentage of variance in the population due to genes (the heritability of traits). These techniques also attempt to quantify what effects shared environment (family) and unique environment (the individual events that shape a life) have on the development of a trait. Some limitations to twin studies include the following assumptions: 1. mating is random (i.e. one is as likely to mate with someone who is similar to one's self as to someone different from them), 2. twins are raised in equal environments (i.e. both fraternal and identical twins raised in the same home are exposed to the same environment), and 3. additive genetic mechanisms are involved (the combined effects of alleles at different loci are equal to the sum of their individual effects) and dominant/recessive mechanism are often not acknowledged (it is not recognized that some alleles are dominant over others). Alleles are one of two or more alternative forms of a gene that occupy the same location chromosomes and controlling the same inherited characteristic. Despite the limitations associated with these assumptions, twins studies provide a powerful technique for understanding behavior. The power of this technique has increased our understanding of gene-environment interactions and is complimented by molecular genetics research.

There is a great deal of twins study research (e. g. Burt, McGue, Krueger, & Iacono, 2005; Larsson, Andershed, & Lichtenstein, 2006; Larsson, Viding, Rijdsdijk & Plomin, 2008; Rowe & Osgood, 1984; Young, Stallings, Corley, Krauter, & Hewitt, 2000) that informs the development of problem behaviors in adolescents and may help researchers better understand the influence genetics may have on sex offending behavior. As young people develop, there is a tendency for genetic inheritance to increasingly drive behavior and influence how children interact with their parents (Harris, 1995; McGue, Elkins, Walden, & Iacono, 2005). This suggests that overtime young people begin to act more in accord with genetic endowment and are less influenced by their home environment. Twins studies give evidence that temperament and personality, factors associated with psychological and social adjustment, are highly heritable and stable over time (Fruyt et al. 2006; Ganiban, Saudino, Ulbricht, Neiderhiser, & Reiss, 2008). However, there is evidence that the genetic influence of personality interacts with parenting in a bi-directional manner to shape the parent-child relationship in adolescence (South, Krueger, Johnson, & Iacono, 2008). Studies provide evidence that the role of parenting may have a minimal effect on the development of many individual characteristics and that those qualities inherent to a child may shape the way they are treated by caregivers (Harris, 1995; McGue, Elkins, Walden, & Iacono, 2005).

Rowe and Osgood (1984) published a twins study in the *American Sociological Review* about the importance of considering heredity on the influence of antisocial behaviors in young people. Because it was published in a prestigious sociological journal, it represented the beginning of a paradigm shift regarding the conceptualization



of children and adolescents engage who engage in behaviors that have a negative impact on society. In this Ohio study of 168 monozygotic (MZ) and dizygotic (DZ) twin pairs, ninety seven of the DZ twins were same sex pairs. Participants were in grades 8-12. The authors collected self-report data from participants on antisocial behaviors and their association with delinquent peers. The study looked at the relationship within individuals between antisocial behavior and association with delinquent peers. Genetic factors were seen to contribute the most to phenotypic variance (.31 for males and .37 for females). Shared environment (.12 for males and .10 for females) and non-shared environment (.08 for males and .11 for females) contributed to a lesser extent of the proportion of phenotypic variance. These results have been followed by similar studies with somewhat similar results eventually leading to greater acceptance of the belief that antisocial behavior is highly influenced by genetics (e. g. Lyon et al., 1995; Young, Stallings, Corley, Krauter, & Hewitt, 2000).

Lyons et al. (1995) applied twin study methodology to differentiate the degree to which genetics and environment influenced the development of antisocial and delinquent behaviors. Their participants consisted of 3226 pairs of male twins from the Vietnam Era Twin Registry. Five juvenile symptoms were found to be significantly heritable (often truant, initiates fights, used weapon, cruel to animals, lies often) and five were found to be significantly related to shared environmental (run away, cruel to people, damage to property, starts fires, steals). For adult antisocial behaviors, eight of the symptoms (inconsistent work habits, fails to conform to social norms, aggressive behavior, fails to honor financial obligations, impulsive, reckless, never monogamous, lacks remorse) were found to be significantly heritable, and one symptom was found to

be influenced by shared environment (no regard for truth). Shared environment explained six times more variance in adolescent antisocial behavior than it did in adults. Genetic influence explained about six times more variance in adult antisocial behavior than in adolescents. This study suggests that adult antisocial behavior is more likely heritable, and delinquent behavior is more likely influenced by environment. These results support Moffitt's model (1993) of antisocial behavior as being either adolescence-limited or life-course persistent in nature as the results appear to illustrate that most delinquent behavior is transient and highly influenced by peer interactions while antisocial behavior appeared to be more intractable and hereditary in nature.

Young, Stallings, Corley, Krauter, and Hewitt (2000) were interested in better understanding the reasons that comorbidity is so common among childhood disorders where externalizing behavior is the symptom held in common (e.g. substance abuse and disinhibited personality). Participants included 172 monozygotic and 162 dizygotic Colorado twins. Psychiatric disorder (structured interviews) and personality (assessment) data were collected. The data yielded a common path model where the variance of underlying behavioral dis-inhibition was predicted by genetic influences (84%) and non-shared environmental influences (16%). Behavioral dis-inhibition contributed significantly to four externalizing behavioral syndromes (conduct disorder, substance abuse, attention deficit hyperactivity disorder [ADHD], and novelty seeking). Non-shared environmental influences were also found to have a significant influence on all four syndromes. Non-additive genetic influences played an important role in influencing ADHD and novelty seeking behaviors while shared environment played a role in determining conduct disorder and substance abuse behaviors. Restated, genetic

predisposition appears to be a strong predictor of the development of ADHD and novelty seeking and home environment appears to be the primary factor contributing to the development of conduct disorder and substance abuse behaviors. Unique aspects of an individual's environment appeared to be associated with all four externalizing behavioral syndromes.

Because of the high rates of comorbidity among substance dependence, antisocial behavior, and a dis-inhibited personality style, Krueger et al. (2002) looked for an etiological connection among them. Using self-report data from 1,048 17-year old male and female twins and data from their mothers, the researchers were able to determine the underlying externalizing factor that was linked to these three types of behavior. They were also able to determine specific factors that accounted for the differences among these three types of behavior. For the derived externalizing factor, 81% of variance was accounted for by additive genetic effects and 18% of variance by non shared environment. No shared variance was found between the derived external factor and environmental effects. These results showed a highly heritable etiological link to the aforementioned behavioral syndromes. Their results also derived unique pathways that contribute to each syndrome. Building on this research, Hicks et al. (2007) looked at differences between males and females from age 17 to age 24 on symptom levels of four externalizing disorders (adult antisocial behavior, alcohol dependence, nicotine dependence, and drug dependence). A mean level of gender difference on the previously derived externalizing factor accounted for the gender differences in each disorder. Men increased their number of externalizing symptoms at a greater rate than women. For the four externalizing disorders, male behaviors were found to have more

variability and increased heritability. Women showed less variability in the expression of behaviors and their behaviors appeared to be more related to environmental effects. The results showed men and women to have peaked in their antisocial behavior in late adolescence followed by lower levels in adulthood.

Research shows a stability for psychopathy traits from childhood to adulthood and that this may be indicative of behaviors influenced by genetics (Lynam, Caspi, Moffit, Loeber, & Stouthamer-Loeber, 2007; Salekin, 2008). Psychopathy is believed to be an important contributing factor to the recidivism of adolescent sex offending behaviors (Gretton, McBride, Hare, O'Shaughnessy, & Kumka, 2001). To better understand the etiological factors that contribute to this phenomenon, Blonigen, Hicks, Krueger, Patrick, and Iacono (2005) were interested in determining the extent to which genetics and environmental factors contribute to psychopathic personality traits in a group of 17 year olds. Unlike this study, previous studies had only focused on antisocial behaviors rather than the interpersonal-affective traits that typify psychopathy. Participants were from the Minnesota Twin-Family Study: 98% Caucasian, and 289 male twin pairs (MZ = 188, DZ = 101) and 337 female twin pairs (MZ = 223, DZ = 114).

Using the *Multidimensional Personality Questionnaire* (MPQ; Tellegen, 2000), the authors measured features of primary psychopathy (i.e. fearless dominance traits which involves low anxiety and high antisocial behavior as a consequence of a lack of conscience) and secondary psychopathy (i.e. impulsive antisocial traits which involves negative affective states such as aggression and alienation coupled with reckless actions). Mental health diagnoses were determined using a modified version of the

*Structured Clinical Interview for DSM-III-R (SCID; Spitzer, Williams, Gibbon, & First, 1990)* and the *Substance Abuse Module of the Composite International Diagnostic Interview (SAM-CIDI; Robins, Babor, & Cottler, 1987)*. Their analysis determined that approximately half of the variance for the expression of primary and secondary psychopathy was due to additive genetic effects. The heritability estimates for men and women were very similar for all variables. Primary psychopathy was negatively associated with internalizing disorders (e.g. major depression, simple phobia, social phobia) for both men and women. Secondary psychopathy was positively associated with externalizing disorders (e.g. adult antisocial behavior, conduct disorder, alcohol dependence, drug dependence, nicotine dependence) and with major depression for both men and women. Primary psychopathy was positively but weakly associated with adult antisocial behavior, conduct disorder, and nicotine dependence in males but not females.

Limitations to this study include that it makes use of a cross-sectional design. Future longitudinal research will be necessary to determine the stability of these traits. Study participants were predominantly Caucasian and from Minnesota. It is possible that these results may not generalize to differing populations. The MPQ was not developed to specifically measure psychopathy but rather to measure a wide range of personality traits. A measure specific for psychopathy would have likely given more information specific to this phenomenon.

Larsson, Andershed, and Lichtenstein (2006) conceptualized a psychopathic personality as being defined by three interrelated dimensions. These dimensions include: 1) an interpersonal style of glibness, grandiosity, and manipulation, 2) an

affective disposition of callousness, lack of empathy, and unemotionally, and 3) a behavioral/lifestyle of impulsivity, need for stimulation, and irresponsibility.

Participants included 1090 monozygotic and dizygotic twin pairs ages 16 and 17 from Sweden. They then used a self-report questionnaire to determine the importance of genetic and environmental influences on the development of psychopathic personality traits. Their results determined a higher order personality factor trait that was related to the three psychopathic personality dimensions [i.e. an interpersonal style of glibness, grandiosity, and manipulation; an affective disposition of callousness, lack of empathy, and unemotionally; and a behavioral/lifestyle of impulsivity, need for stimulation, and irresponsibility]. For their derived psychopathic personality factor, variance accounted for by additive genetic effects was .63, shared environmental effect was .0, and non shared environment was .37. Genetic influences were found to be significant for traits of callousness/unemotional and impulsive/irresponsible but not for the grandiosity/manipulative trait. All genetic variance was found to be shared with the latent psychopathic personality dimensions. For these reasons, the authors believe that the callousness/unemotional trait and the impulsive/irresponsible trait can occur independently of each other and of the grandiosity/manipulative trait.

A number of twin studies using multiple informant measures of problem behavior have been published. These studies are valuable because a single source rating of child problem behavior (i.e., caregiver, researcher, self-report, etc) may contain a form of bias not accounted for by researchers. Arseneault et al. (2003) conducted a twin study using information from mothers, teachers, research examiners, and child self-reports. The twins were 5-years-olds and from Wales and England. Their results showed that child

(participant) antisocial behavior was reliably measured by all four informants, giving evidence to support the pervasiveness of the behavior across settings. This study found genetic factors related to an 82% influence in expression of antisocial behavior and individual experiences responsible for 18% of phenotypic expression. What may be the most important finding of this study is the high degree to which genetic risk contributes to antisocial behaviors when they are seen early in life. These results provide evidence that antisocial behaviors in early childhood are often strongly influenced by genetics and much less so by environment. In other studies, genetic risk makes a much more modest contribution to adolescent behavior (Rhee & Waldman, 2002). The Arseneault et al. results are in contrast to measures of childhood cognitive ability which is influenced, to a greater degree in childhood by environmental factors and then becomes more influenced by genetic factors as the child develops (McGue, Bouchard, Iacono, & Lykken, 1993; Plomin, Fulker, Corey, & DeFries, 1997). In other studies looking at early phenotypic expression of childhood antisocial behavior, researchers have found that these behaviors result in a bi-directional process and describe a cycle of parental negativity and child behavior that further exacerbates antisocial behaviors (Burt, McGue, Krueger, & Iacono, 2005; Larsson, Viding, Rijdsdijk & Plomin, 2008).

Baker, Jacobson, Raine, Lozano, and Bezdjian (2007) also used a multi-informant twin study to research antisocial behavior in childhood. Their study investigated 9 and 10-year-old children in a culturally diverse area of Southern California; participants were 26.6% Caucasian ( $n = 161$  pairs), 14.3% Black ( $n = 86$  pairs), 37.5% Hispanic ( $n = 227$  pairs), 4.5% Asian ( $n = 27$  pairs), 16.7% Mixed ( $n = 101$  pairs), and 0.3% other ethnicities ( $n = 2$  pairs). The behaviors of importance were antisocial and aggressive

behaviors which were a combination of conduct disorder symptoms and ratings of aggression, delinquency, and psychopathy. The ratings were collected from caregivers, teachers, and participants' self-reports. Though parent, child, and teacher ratings varied, a multivariate analysis found a common antisocial and aggressive behavior factor that was strongly heritable (heritability was .96). These results suggest that environmental factors may have had little influence on the development of antisocial behaviors; however, the behaviors may reflect a group of stable personality traits such as impulsivity and low levels of empathy. The authors believe that their results support the notion of a highly stable group of personality traits contributing to antisocial and aggressive behaviors in children. Unlike this study, previous studies have lacked the cultural diversity necessary to enhance the generalizability of the results. The differences between rater groups (parent, teacher, and child) point to how the views of antisocial and aggressive behaviors differ for each group with the authors believing the children's reports to be most accurate.

Non-twin studies related to antisocial behaviors have also added a great deal of information to the understanding of gene and environment interactions. In a landmark study by Caspi et al. (2002), the authors were able to follow a sample of males, who had been mistreated early in life, from childhood to adulthood. They were also able to assess whether individuals in this group had themselves engaged in antisocial behavior and whether they had genotype conferring high or low levels of monoamine oxidase A (MAOA) expression. Genetic deficiencies in MAOA activity (low levels) had been linked to aggressive behavior in animals and humans. Maltreated children with the genotypes that produce high levels MAOA were much less likely to engage in antisocial



behavior; maltreated children that had produced low levels of MAOA were much more likely to engage in antisocial problems. High and low levels of MAOA did not predict antisocial behavior if the child had not been exposed to maltreatment. Although there are likely environmental complexities that will require further clarification, a meta-analysis gave evidence for the replicability of this gene-environment interaction effect (Kim-Cohen et al., 2006). In a related twin study, Button, Scourfield, Martin, Purcell, and McGuffin (2005) analyzed the association between child and adolescent antisocial behavior and family dysfunction. Their results showed evidence for the main effect of genes (that some expression of antisocial risk genes will occur regardless of environment) but also that other antisocial risk genes will only be expressed when family dysfunction is present.

Beaver (2008) was interested in determining if a history of childhood sexual abuse would interact with individual genetic risk to predict involvement in violent delinquent behavior. A subset of 2574 participants from the National Longitudinal Study of Adolescent Health was genotyped for alleles (i.e. one of two or more alternative forms of a gene that occupy the same position locus on paired chromosomes and controlling the same inherited characteristic ) in three dopaminergic genes (DAT1, DRD2, and DRD4) associated with violent behavior. For the DAT1 gene the 10-repeat was viewed as the risk for abuse allele while the 9-repeat allele was seen as the non-risk allele. For the DRD2 gene the A1 allele was described as the at risk gene while the A2 was considered the non-risk allele. DRD4 alleles with repeat sequences greater than or equal to 7 codes as risk alleles while alleles with repeat sequences shorter than 7 were coded as not contributing to risk. A genetic risk index was developed by adding

together the degree to which a participant was found to have the at risk genotype for each allele. The participant self-report survey gave evidence that 5% of study participants had been sexually abused as children (4.4% of males and 5.6% of females). A seven item delinquency violence scale was administered to assess current level of antisocial behaviors. The author's analysis controlled for participant age and race (White and non-White).

The results gave evidence that childhood sexual abuse and the presence of genetic risk alleles combined in a synergistic fashion to produce violent behaviors in males but not females. It also appeared that the genetic index played no role in the development of violent delinquency behaviors if there was no history of childhood sexual abuse.

Limitations to this study include that there are often problems with reliability when information about sexual abuse is collected through retrospective and/or self-report data (Windom, Raphael, & DuMont, 2004). The subsample used in this study involved participants who also had a sibling in the National Longitudinal Study of Adolescent Health. It is possible that the participant DNA may not generalize to the greater adolescent population because it was from a subsample. Because there were fewer females reporting a history of sexual abuse than males, which is a quite unusual result (MacMillan et al., 1997), one may question if unequal results may contribute to the insignificant results in females.

In conclusion, genetics and gene-environment interaction: research has made a great contribution with regard to how we now conceptualize challenging behaviors in adolescents.

- Behavioral genetics gives evidence that antisocial behavior in young people is highly influenced by genetics (Rowe & Osgood, 1984).
- Delinquent behavior in most adolescents is often influenced by environment while antisocial behavior in adults appears to be mostly heritable (Lyons et al., 1995).
- Genetic and unique individual environments contribute to the development of conduct disorder, substance dependency, attention deficit/hyperactive disorder, and novelty seeking with genetic endowment being the most influential; shared environment (i.e. home environment) was found to influence the development of conduct disorder and substance dependency (Young et al., 2000)
- High rates of comorbidity for adolescents with substance dependency, antisocial behavior disorder, and uninhibited personality style were related to a highly heritable underlying factor associated with externalizing behavior (Krueger et al., 2002). Hicks and colleagues (2007) found this underlying factor associated with externalizing behavior to be more heritable in males; externalizing behaviors in females appears to be more related to environmental factors rather than genetics.
- Psychopathy appears to be highly heritable in adolescents (Larsson et al., 2006); two specific subtypes of psychopathy found in adolescents appear to be highly heritable and to manifest in specific mental health syndromes (Blonigen et al., 2005).

- Antisocial behaviors in early childhood appear to be highly heritable (Arseneault et al., 2003) and manifest similarly across racial and ethnic groups (Baker et al., 2007).
- There is evidence that males with specific genetic profiles are predisposed to engaging in future antisocial behavior if they are exposed to maltreatment or grow up in dysfunctional families; not growing up in such environments seems to greatly reduce, and in some cases eliminate, the phenotypic expression of antisocial behavior (Caspi et al., 2002; Scourfield et al., 2005).
- Childhood sexual abuse and the presence of genetic risk alleles appear to combine in a synergistic fashion to produce violent behaviors in males but not females; genetic endowment played no role in the development of violent antisocial behaviors if there was no history of childhood sexual abuse (Beaver, 2008).

**Neurobiological models of adolescent development.** Adolescence is a unique developmental period. Dahl (2004) defined adolescence as the awkward period between sexual maturation and the attainment of adult roles and responsibilities. He also refers to the health paradox observed during this period. Throughout adolescence most have matured beyond the frailties of childhood but have not yet begun the degenerative process of adulthood. It is a period equated with strength and resilience. Nonetheless, in this same period, morbidity and mortality increase by 200 percent as a result of risky behaviors driven by the inability to regulate emotions and behaviors (Dahl, 2004). These behaviors occur in spite of cognitive gains that would predict decision making similar to adults (Steinberg, 2005, 2007). In the past, these types of

behaviors were seen as being driven by raging hormones or having its roots in events experienced during childhood; however there is now significant neurological evidence that suggests a brain that is far from fully developed during adolescence (Cauffman, 2004). Because of the commonality of adolescent deficits in executive functioning (i.e. cognitive abilities that allow one to anticipate outcomes and adapt to changing situations) relative to emotion, thrill seeking, and antisocial behavior, many have hypothesized that there may be a window of time for developing these regulatory skills (Masten, 2001, Steinberg, 2005). During this time, the plasticity of the brain allows for emotional regulation to be learned. However, as with learning a sport, musical instrument, or language at a young age, as time passes, the skill becomes more difficult to acquire and remedial efforts become much more intensive to implement. Related to this phenomenon, there is evidence that many adolescent sex offenders are raised in chaotic homes, lacking an emphasis on the development of executive functioning skills (Schwartz, Cavanaugh, Pimental, & Pretsky, 2007) and that adult pedophilic sex offenders exhibit significant deficits in executive functioning when compared to non-offenders (Suchy, Whittaker, Strassberg, & Eastvold, 2009).

There is a great deal of variability in the degree to which individuals engage in risk-taking behaviors (Casey, Getz, & Galvan, 2008). These individual differences can be seen at a young age and tend to predict future levels of risk-taking behaviors (Mischel, Shoda, & Rodriguez, 1989). Nonetheless, heightened levels of novelty-seeking and risk-taking behaviors appear to be unique to adolescence as similar levels of these behaviors are uncommon in childhood and adulthood (Casey et al., 2008). Steinberg (2004, 2007) describes adolescents as having comparable logical

competencies to adults but make poor decisions in the presence of high affective arousal. He describes differences in decision making depending on whether an adolescent is engaging in 'hot' cognitions (tied to strong feelings and/or high arousal) or 'cold' cognitions (when emotion and/or arousal is low). Adolescents engaged in hot cognitions are believed to make decisions based on a desire for novelty, arousal, and excitement despite the possibility of a negative outcome; adolescents who engage in cold cognitions make logical and deliberate decisions similar to adults. Although the majority of adolescents channel their energy and desire for intensity into activities that are safe and do not harm others, some engage in harmful sensation seeking experiences that place themselves and others at-risk.

Somerville, Jones, and Casey (2010) believe that the early maturation of the amygdala and ventral striatum of the brain combined with the late maturation of the prefrontal cortex of the brain leads to an increase in affectively-driven behaviors. The amygdala appears to involve the processing of emotionally evocative stimuli, emotional states in others, and potential threats as well as the formation of memories related to emotions such as fear and anger. A portion of the ventral striatum, the nucleus accumbens, influences behavior related to the anticipation and attainment of rewards. Since the ventral striatum links the amygdala to the prefrontal cortex, behaviors associated with high levels of stimulation and the attainment of rewards (e.g. sexual behaviors, substance use, unsafe driving) initiated in the amygdala and ventral striatum are believed to be moderated by the prefrontal cortex, a structure involved in the regulation of emotion, complex cognition, and rational decision making. Specifically, the lagging development of the prefrontal cortex appears to contribute to a reduction in

the ability of adolescents to regulate reactions within the context of heightened levels of risk-taking and novelty-seeking behaviors (Giedd et al. 1999).

Gottfredson and Hirschi (1990) have argued that self-control is determined at a young age and tends to be stable across development; however, it must be remembered that stability refers to an individual's relative standing on a specific characteristic and does not reflect the amount of change that is possible in the level of a characteristic. Steinberg (2007) describes the development of self-regulatory abilities in the face of heightened emotion or arousal as a lengthy process that requires adequate levels of parental supervision and parental modeling. However, in the United States, there has been a trend toward decreased levels of parental supervision of adolescents which can prevent many adolescents from developing the self-regulatory responses necessary for appropriately dealing with high intensity feelings (Masten, 2001). There is also evidence that less monitored adolescents engage in more risk behaviors and have lower self-esteem when compared to more supervised same-age peers (Parker & Benson, 2004). Steinberg's assertions about parenting and adolescent development are important for understanding adolescent sex offending behavior for several reasons. First, sexual offending would meet Steinberg's criterion for being arousing or high in intensity and therefore increase the likelihood of impaired judgment for some adolescents. Second, there is evidence that adolescent sex offenders have less supervision than same aged peers who do not offend (Hunter & Figueredo, 1999). Finally, some researchers believe that adolescent offenders do not learn to inhibit aggressive behaviors because of poor parental modeling (Davis & Lietenberg, 1987; Bourke & Donohue, 1996).

A study that illustrates the importance of the development of self-regulatory abilities was recently published by Monahan, Steinberg, Cauffman, and Mulvey (2009). Monahan and colleagues attempted to better understand the developmental trajectories of antisocial behavior among serious juvenile offenders. They tracked their study participants from the age of 14 through 22 years. The study included 1,105 adolescent males from Phoenix and Philadelphia who had been charged with a felony or serious misdemeanor (e.g. misdemeanor weapons or sexual assault charge). Forty one percent of participants were African American, 35% were Hispanic American, 20% were non-Hispanic Caucasian, and 4% other.

The authors used group-based trajectory modeling to identify distinct patterns of antisocial behavior; aspects of psychosocial maturity were measured to assess developmental trajectories that differentiated those who continued to engage in antisocial behaviors from those who desisted from such behavior. Participants were assessed on measures of impulse control, suppression of aggression, future orientation, consideration of others, personal responsibility, and resistance to peer influence. Factors related to risk-taking behavior were most salient. When compared with those who no longer engaged in antisocial behavior, participants who continued to engage in antisocial behaviors failed to make gains in psychosocial development relative to impulse control, suppression of aggression, and future orientation. These limitations are believed to be associated with a less-developed prefrontal cortex because of its known role in regulating impulsivity and risk-taking behaviors (Giedd et al., 1999; Somerville, Jones, & Casey, 2010). Participants who were more responsible, empathic, and resistant to peer pressure were no less likely to engage in antisocial behaviors. These



results are similar to that of Delisi and Vaughn (2008) who found low self control in adults to be a much better predictor of career criminal behavior than age, race, ethnicity, gender, socioeconomic status, mental illness, attention deficit/hyperactive disorder, or history of trauma.

It is possible that the results of the Monahan et al. (2009) study have more to do with environmental factors than inherent characteristics. Participants who no longer engaged in antisocial behavior may have had to move into adult roles that required increased levels of responsibility and social conformity while those who continued to engage in antisocial behaviors may have had no such factor influencing their behavior (Laub & Sampson, 2001). The Monahan et al. study provides data about what behaviors are commonly seen when individuals do not develop the ability to manage impulsive and risk-taking behavior; what limits one's ability to develop behavior regulation abilities is unclear. The participants in the study come from two specific urban areas and are overrepresented by minority groups that are often subjected to heightened levels of socioeconomic stress. Generalizations from these results to other geographic locations and other racial or ethnic populations should be made with caution.

With recent advances in technology, researchers are able to investigate if adverse conditions during human development lead to enduring physiological changes in neuroanatomy and a consequent change in behavior. When evaluating neuroimaging studies (e.g. Functional Magnetic Resonance Imaging, Positron Emission Tomography), it is important to remember that thought is an amalgamation of cognitive functions where individual dispositions and individual methods of responding to and

integrating information into schemas cannot be measured. Studies are able to show where specific cognitive activities take place but not necessarily what is going on. One must remember that neuropsychological structures are interconnected. This review of literature gives a brief overview of the structures most commonly studied that appear to influence antisocial and/or sex offending behaviors in adolescence. The extant literature also provides evidence of neuropsychological structures other than those discussed below that may influence antisocial behaviors; for example, areas of the temporal and parietal cortex have been found to be associated with moral judgment. Moving forward, it is likely that a greater number of neurostructures will be implicated in maladaptive adolescent behaviors thus expanding the breadth and depth for which we understand such behaviors. Lopez, Schwartz, Prado, Campo, and Pantin (2008) believe that neurophysiological research will become increasingly important in informing child-centered and family-based prevention and therapeutic interventions because it can speak to specific physiological limitations that may be contributing to maladaptive behavior.

Adolescents with psychological disorders, along with those who engage in sexual offending behaviors, are more likely to have been exposed to abuse, neglect, and in-home instability than their same aged peers (De Bellis, Broussard, Herring, Wexler, Moritz, & Neitez, 2001; Johnson-Reid, 2001; Netland & Miner, 2007; Schwartz, Cavanaugh, Pimental, & Prentky, 2006). It is believed that excessive stress facilitates the development of neurostructures that enable persons to distance themselves emotionally from stressors but also contribute to an enhanced likelihood of engaging in behaviors that are antisocial in nature (De Bellis, 2001; Tiecher, 2002). For example, Teicher et al. (2003) describe how exposure to environmental stressors early in life can

reduce the size of the mid-portion of the corpus callosum. This process diminishes communication between the hemispheres of the brain and reduces communication between aspects of the brain that are most reactive to aversive stimuli with other parts that represent logical and analytical processes. This may result in a very reactive youth whose cognitions are not regulated by more deliberative, reasoned thought. Similarly, being subject to abuse and neglect has been shown to attenuate the development of the left neocortex, an area of the brain important for limiting responses to stress. According to Teicher and colleagues, the neocortex is less likely to develop in individuals who have been exposed to high levels stress during early childhood and may lead to an inability to moderate stress reactions.

Early sustained exposures to stressful environments have also been shown to affect the sub-cortical region of the brain known as the amygdala and the hippocampus (Teicher et al., 2003; Yates, 2007). As stated previously, the amygdala is involved in the formation of memories related to emotion such as memories related to feeling fear or jealousy. Over stimulation of the amygdala at a young age (i.e. child exposed enduring stressors) can produce what is referred to as a 'kindling effect'. So, while the amygdala is helpful in initiating the 'fight or flight' response to aversive stimuli, children previously exposed to extensive amounts of stress tend to become less able to discriminate among stressors than their less stressed peers and escalate to a fight or flight response more quickly. Schlitz et al. (2007) found that adult child sex offenders were more likely to have smaller amygdala compared to non offenders. Baird, Wilson, Bladin, Saling, and Reutens (2007) report that functional neuroimaging studies and lesion studies give evidence that consummatory sexual behavior (i.e. sexual

preparedness and orgasm) appears to correspond with decreased amygdala activity while appetitive sexual behavior (i.e. viewing sexual stimuli) was associated with increased amygdala activation. Although it is unclear how amygdala development is associated with adolescent sex offending, the amygdala, associated with emotional regulation and sexual regulation, will likely continue to be studied as an area of interest in sex offending research. Furthermore, underdevelopment of the amygdala tends to come at the expense of the hippocampus development. The hippocampus is involved in coding memories that can be verbalized. Excessive stimulation and development of the amygdala appears to decrease the ability of the hippocampus to develop. There is evidence that children, who have been exposed to excessive stress, score lower on measures of verbal ability and have difficulty verbalizing the reasons for their behavior (Allen & Oliver, 1982; Carrey, Butter, Persinger, & Bialik, 1995; DeBellis, 2005). Correspondingly, it is possible that the verbal deficits commonly seen in adolescent sex offenders may be related to a history of abuse (Langevin, Wortzman, Wright, & Handy, 1989; Schwartz et al., 2006).

The information given above describes how abuse and neglect creates an overall enhanced stress responsiveness that can be associated with an increased susceptibility to psychological problems and a pattern of mental health concerns throughout adolescence (De Bellis, 2005; Hankin, 2008; Harkness, Bruce, & Lumley, 2006). There is also growing evidence that exposure to undue stress early in life may manifest itself differently in males and females (Goldsmith & Freyd, 2005; Teicher et al., 2003). Specifically, females exposed to excessive environmental stress early in life have been found to develop many symptoms inherent to borderline personality disorder (i.e.,

instability in mood, "black and white" thinking, and chaotic/unstable interpersonal relationships, self-image, identity, and behavior). Schmahl, Vermetten, Elzinga, and Bremner (2002) found that females with borderline personality disorder had 21.9% smaller mean amygdale volume and 13.1% smaller mean hippocampal volume compared to a healthy control group. Boys with a history of exposure to similar environmental stressors are less likely to have borderline personality disorder symptoms; instead, symptoms related to alexithymia are more likely to be seen in boys. Alexithymia involves difficulty identifying and verbalizing feelings and emotions, difficulty distinguishing between feelings and bodily sensations of emotional arousal, and difficulty describing the feelings of other people (Carpenter & Addis, 2000). The inability to be empathic and distinguish feelings from bodily sensations might help to explain the rate of disparity in which adolescent boys and girls engage in sex offending behaviors. There is currently no evidence supporting a link to alexithymia and adolescent sex offenders (Moriarty, Stough, Tidmarsh, Eger, & Dennison, 2001); however, researchers believe that alexithymia may be a construct useful in conceptualizing the behaviors of adolescent sex offenders with a history of abuse (Stinson, Becker, & Tromp, 2005; Ward, Keenan, & Hudson, 2000).

An example of how abuse can alter neuroanatomy is demonstrated by Anderson et al. (2008). Their study compared volumetric magnetic resonance imaging (MRI) scans of 26 women exposed to repeated sexual abuse with the scans of 17 healthy females. Females in both groups were between 18 and 22 years old. For women abused at ages 3-7 and 11-13 there was significant decreases in hippocampal volume. Those abused at 9-10 years of age had less developed (i.e. reduced neural volume)

corpus callosum and those subjected to sexual abuse at ages 14-16 had reduced frontal cortex volumes. This study shows the neurological vulnerability of humans to significant stress, a phenomenon already well-established in animal studies (McEwen, 2007). Although the behavioral and physiological manifestations of such abuse may differ in males, this type of research may shed some light on adolescent sex offending behavior because sex-offending adolescent males have often been subject to physical and/or sexual abuse (Borton, 2008; Spaccarelli, Bowden, Coatsworth, & Kim, 1997; Wijk, et al., 2005).

In a related study with adolescent sex offenders, Grabell and Knight (2009) were interested in determining if there are specific childhood developmental periods during which sexual victimization predicts future sex offending behavior by the child victim. Participants included 193 juvenile sex offenders in inpatient treatment facilities in Maine, Massachusetts, and Minnesota. All had been adjudicated of a least one sexual assault that involved physical contact. The mean age of subjects was 15.2 years ( $SD = .25$ , range = 11-22). Participants were 56.2% Caucasian, 16.4% African American 6.4% Hispanic, 4% Asian American, and 3.6% Native American. A computerized inventory was used to obtain self-report participant information on history of sexual contact with an adult as a child. Epoch-related scales were used to measure the number of years that sexual contact occurred, the amount of force, and the frequency of sexual contact that occurred during four different periods of time: from birth until the 3<sup>rd</sup> birthday, from the 3<sup>rd</sup> birthday until the 7<sup>th</sup> birthday, from the 7<sup>th</sup> birthday until the 11<sup>th</sup> birthday, and from the 11<sup>th</sup> birthday until the 17<sup>th</sup> birthday.

The results suggest that sexual abuse between the ages of 3 and 7 years was associated with sexual offending as an adolescent. More specifically, being subject to a sexual assault during this developmental period was associated with sexual fantasy measures of sexual compulsivity, sexual preoccupation, and hypersexuality in adolescence. Sexual fantasy has been found to predict sexually coercive behavior in both corrections and community samples (Knight & Sims-Knight, 2003, 2005). Although statistically significant, the association between sexual abuse and sexual fantasy was weak. Nonetheless, these results point to a possible developmental window which may moderate sexual victimization as a contributing factor to engaging in sexually coercive behavior.

When assessing the Grubell and Knight (2009) study, it is important to question the accuracy of adolescent self-report data with regard to memory during the first five years of life. Similarly, retrospective data are vulnerable to distortions for a number of reasons, including memory failure and possible adjustment problems common in this population. Although sexual abuse during a specific developmental period may be related to future sex offending behavior, it may be that the factors contributing to the initial abuse (e.g. lack of adult protection and supervision) are actually more important than specific life events. The results do not speak to specific neurobiological mechanisms that might contribute to sexual coercive behavior nor do they conceptualize these results within the context of Burton's (2008) social learning "victim-to-victimizer" etiological model.

While physical abuse, sexual abuse, and neglect have been implicated in developmental problems that are neuropsychological in nature, there is now evidence

that the effects of verbal abuse can be just as deleterious and long lasting (Teicher, Samson, Polcari, & McGreeney, 2006; Yates, 2007). Verbal abuse is believed to have additive and/or synergistic effects when combined with other forms of abuse. Because of the traumatic nature of the events that lead to mental health concerns it has been hypothesized that childhood post traumatic stress disorder (PTSD), which can have its roots in any of the previously described forms of maltreatment, is the “gateway illness” to many childhood and adolescent internalizing and externalizing behavior disorders (De Bellis, 2001, Teicher et al. 2006). Gilberston et al. (2002) found evidence that smaller hippocampal volume predicted vulnerability to psychological trauma in adults. As stated previously, the hippocampus is an area of the brain involved in coding memories that can be verbalized. Using a sample of monozygotic twins where one twin had been exposed to combat in Vietnam and the other had not, they found that the twins who suffered from PTSD had reduced hippocampal volumes compared to those who did not suffer from PTSD. Combat exposed participants and their twins who were not exposed to combat but persistent unrelenting PTSD, but had significantly smaller hippocampal volumes compared to the non-PTSD pair; however, only twins with low hippocampal volumes that were exposed to combat developed PTSD symptoms. These findings give support for the idea that small hippocampal volume along with exposure to significant stressors (i.e. combat) are associated with developing PTSD. Vythilingam et al. (2002) also believe that there is a relationship between early childhood abuse, reduced hippocampal volumes in children, and the development of childhood depression.



Neuropsychology has contributed to our understanding of adolescence development as summarized below.

- During adolescence risk-taking and novelty-seeking behaviors become more common (Dahl, 2004; Steinberg, 2007).
- These behaviors appear to be associated with a lag in the development of the prefrontal cortex of the brain which serves to regulate emotion-laden and impulsive behaviors (Giedd et al., 1999; Somerville et al., 2010).
- Individuals who continue to engage in antisocial behavior beyond the period of adolescence fail to develop abilities associated with the prefrontal cortex, including the ability to control impulses and anger and to foresee the potential consequences of actions (Monahan et al., 2009).
- There is growing evidence that exposure to abuse (i.e. physical, sexual, and verbal) influences the physiological development of many neurological structures (Yates, 2007).
- The development of the amygdala, a structure associated with the intensity of reactions to psychological stressors and sexual behavior, appears to be reduced in individuals subjected to abuse in childhood (Teicher et al., 2003; Teicher et al., 2006; Yates, 2007).
- A history of childhood abuse may manifest itself differently in females and males with females being more likely to develop borderline personality disorders and males more likely to develop alexythmia (Goldsmith & Freyd, 2005; Teicher et al., 2003; Schmahl et al., 2002).

- The underdevelopment of the hypothalamus appears to be associated with childhood abuse (Anderson, Tomada et al., 2008) and may predispose people to post traumatic stress disorder (Sheline et al., 1999; Vythilingam et al., 2002).
- There is mounting evidence that childhood events can contribute to reduced hippocampal volume. Furthermore, reduced hippocampal volume, may or may not be associated with early environmental stressors, and may leave one more predisposed to symptoms of depression and anxiety if they are exposed to significant stressors (Sheline et al., 1999).

**Attachment theory.** Seeking and maintaining contact with attachment figures is an inherent survival mechanism for humans as it is developed to provide humans with a safe base to explore a world that can be dangerous (Bowlby, 1988; Sloman, Atkins, Milligan, & Liotti, 2002). Attachment theory states that if one is raised by parents who provide consistent and sensitive responses to a full range of infant emotions they will later learn to self-regulate and develop strategies for managing increased levels of arousal (Bowlby, 1988). However, parents, based on their own attachment experience, vary in their ability to communicate, perceive, and respond to emotional cues. There is also increasing evidence for the two-way interaction between an individual's attachment style and their neurological development (Beech & Mitchell, 2005).

Edelstein et al. (2004) examined the association of self-reported attachment style with parental responsiveness to their child during stressful events. Thirty-nine children (ages 3 to 7) and parent dyads were observed while the child received an inoculation. The child's reactions were rated by observers and the parents' level of responsiveness

was evaluated using the *Emotional Availability Scales* (EAS; Biringen, Robinson, & Edne, 1998), a procedure that videotapes parents and rates them on sensitivity, structuring, non-intrusiveness, and non-hostility. Children whose parents scored higher on measures of avoidance were more distressed during the inoculation. The most avoidant parents were the least comforting when their children were highly distressed; parents rated least avoidant were most comforting when their child was highly distressed. The influence of adult attachment on parental behavior and child's distress were independent of both child temperament and parent personality.

In a six year longitudinal study of adolescents and adults, Zhang and Labouvie-Vief (2004) found evidence that attachment styles were relatively stable. They also found that measures of attachment correlated well with one another and to have good test-retest reliability and validity. Attachment security showed positive co-variation with positive coping and self-perceived well-being. Correspondingly, there was a negative concurrent co-variation with defensive coping and depressive symptoms for securely attached individuals. When participants reported being better copers and rated their self-security higher than their own average baseline they were found to be more secure than their own baseline. An age affect was also found as over time subjects became more secure, more dismissing, and less preoccupied than younger people. Adolescents who describe themselves as securely attached tend to described themselves as less anxious and depressed than insecurely attached peers (Muris, Meester, van Melick, & Zwambag, 2001). Attachment style also tends to correlate with Big Five personality traits - openness, conscientiousness, extroversion, agreeableness, and neuroticism (Becker, Billings, Eveleth, & Gilbert, 1997). However, despite providing a

valuable and often applied theory for research and therapeutic interventions, some have argued that attachment theory is overly deterministic, that parental influence is overestimated, and that socialization takes place primarily in peer groups (Harris, 1998; Pinker, 2002).

However, there is much evidence that patterns of attachment drive behavior that effect future relationships. In a longitudinal study, Simpson, Collins, Tran, and Haydon (2007) followed up on 78 individuals who had been studied intensively from their infancy to their mid-20's. When participants reached 20-23 years old the authors tested the way interpersonal experiences at infancy/early childhood, early elementary school, and adolescence predicted emotional experiences with his or her romantic partner. The authors found that individuals securely attached at 12 months were more socially competent in early elementary school (based on teacher ratings), were more secure in relationship with close friends at age 16, had more positive daily experiences in their adult relationships (self and partner reports), and had less negative affect in conflict resolution and collaborative tasks with romantic partners (rater observations).

Attachment styles have also been found to influence adult sexual relationships. Birnbaum, Reis, Mikulincer, Gillath, and Orpaz (2006) found that anxious attachment relationships tend to amplify the positive and negative effects of sexual experiences; avoidant attachment inhibited the positive relational effects of having sex and the detrimental effects of having negative sexual interactions.

In general, early age maladaptive attachment styles appear to contribute to the development of behavior problems that often continue into adulthood, affecting adult relationships (Grossman, Grossman, Winter, & Zimmerman, 2002; Hamilton, 2000;

Feeney, 1999). Maltreated and/or abused children are more likely than their peers to exhibit insecure attachment (Cicchetti & Barnett, 1991; Crittenden, 1985) and to exhibit aggression toward others (Finzi, Ram, Har-Even, Shnit, & Weizman, 2001). Also, Ooi, Ang, Fung, Wong, and Cai (2006) reported that boys with higher quality parent-child attachment were less likely to engage in aggressive behavior. In addition, Lawson (2008) found that the least securely attached men had a plethora of interpersonal problems as adults. Furthermore, there is evidence that severely disruptive attachment is correlated with sexual offending behavior (Hummel, Thömke, Oldenbürger, & Specht, 2000; Lightfoot & Evans, 2000; Miner et al., 2010).

Attachment theory has become an important way of conceptualizing the etiology of sex offending behavior. Marshall and Barbaree (1990) developed a comprehensive theory of sex offending behavior (The Integrated Theory of the Etiology of Sexual Offending) using attachment theory as a framework. They described sex offending behaviors as having precursors of harsh, inconsistent parenting that was devoid of warmth and accepting support. They further hypothesize that adolescents, who were raised in an environment with persistently harsh discipline and lack of caregiver warmth, will see themselves as unattractive partners for peers and/or that their previous experiences with same-age peers will lead them to believe that peer rejection is likely. As adolescents, these individuals believe that they will be unattractive partners and rejected by peers, thus they may turn to children for sexual intimacy and closeness. Smallbone (2006) revised the theory by placing more emphasis on individual biological differences and acknowledging the influence of physical and interpersonal environmental factors.

Westen, Nakash, Thomas, and Bradley (2006) developed a measure of attachment for clinicians to use with adolescents and adults who develop psychopathology. Their results found correlations between attachment styles and personality characteristics. Specifically, preoccupied and incoherent/disorganized (fearful) attached individuals were found to have a significant and positive correlation with borderline personality disorder. This finding may be relevant for sex offenders in light of findings by Miner et al. (2010), which assert that adolescent sex offenders are more likely to have preoccupied and fearful attachment styles. Also, as noted earlier, Tiecher and colleagues (2003) described the development of borderline personality disorder being consistent with severe neglect and abuse in females but that alexthymia was more likely to develop in males. Taken together, these results show that borderline personality disorder and sex offending behavior may have similar etiological origins in fearful and preoccupied attachment styles but may manifest themselves differently in males and females.

Attachment theory is important to understanding adolescent development and interpersonal interactions as summarized below.

- Attachment style appears to remain stable throughout life (Simpson et al., 2007; Zhang & Labouvie-Vief, 2004).
- A healthy attachment style tends to make males less prone to aggression (Ooi et al., 2006).
- Insecure attachment is associated with difficulty maintaining rewarding and supportive relationships in adolescence and adulthood (Birnbaum et al., 2006; Lawson, 2008; Simpson et al., 2007).

- Insecure attachment is associated with aggressive behaviors in youth (Finzi et al., 2001), and with mental health issues and adolescent sex offending behavior (Miner et al., 2010; Westen et al., 2006).

**Ecological systems theory of adolescent development.** In Bronfenbrenner's Ecological Systems Theory (also known as the Bioecological System Theory) development is viewed within the context of relationships that create a young person's environment (Berk, 2007). The strength of ecological system theory is its ability to explain behavior through identifying the interactions between a child's neurological disposition, immediate family/community, and the societal environment that drives development. These environments are described in terms of layers where proximity is akin to level of influence. Change in any one layer influences the others; however, certain structural elements are more influential.

The microsystem is the closest layer and involves a child's immediate surroundings (Berk, 2007). Family, schools, other significant childhood caregivers, and peers make up the microsystem layer. Interactions within the microsystem are bi-directional in their influence. For example, the behavior of parents and children influence one another. This interaction can be seen in a twins study by Deater-Deckard (2000) who found that low levels of maternal warmth and high levels of negative control (e.g., criticism and physical control) were associated with high levels of difficult behavior in children. In this study no genetic link was found between parental behavior and child behavior. Building on this study, Deater-Deckard, Ivy, and Petrill (2006) found maternal lack of warmth to be a strong predictor of externalizing behaviors regardless of genetic similarity (i.e. biological versus adopted child). The participants'

genetic inheritance was not found to influence home environment in any appreciable manner.

In other research emphasizing the importance of caregivers as part of the microsystem, Tully, Iacono, and McGue (2008) used a study design to determine the risks for psychopathology posed to adolescents who are raised by depressed parents. Their study included 568 adopted and 416 nonadopted adolescents and their parents. Clinical interviews were conducted to determine the lifetime occurrence of major depressive disorder, oppositional defiant disorder, conduct disorder, and attention deficit/hyperactive disorder. Maternal depression was associated with significantly greater risks for non-adopted and adoptive adolescents developing major depression and disruptive behavior disorders. Paternal depression was not found to be an environmental liability for developing psychopathology in adolescents.

In other research related to the familial microsystem, Stone (2007) found caregiver communication to be related to higher academic grades and decreased likelihood of dropping out of high school. Similarly, school engagement and academic performance were found to be mediated by caregiver-adolescent interactions, youth perception of school belonging, and school climate (Benner, Graham, & Mistry, 2008). While a lack of educational success is associated with adolescent behavioral problems, problem behaviors can be minimized by family support (Johnson, McGue, & Iacono 2009; Moffitt, 1993). Besides influencing academic and behavioral regulation, parental support is also associated with adolescent sexual offending when the offender has been a victim of sexual abuse. Sexual victims were more likely to become sex offenders if reared in non supportive family environments whereas sexual victims raised in



supportive environments were less likely to become sex offenders (Hunter & Figueredo, 2000).

Peers are also believed to have a significant influence on youth behavior as they enter late childhood and adolescence (Harris, 1995). Guo, Elder, Cai, and Hamilton (2009) used a twin study to determine the degree to which peer interactions influenced adolescent alcohol drinking. Higher levels of alcohol use by friends tended to exacerbate any genetic contribution to alcohol use. Lower use by friends tended to minimize the genetic contribution related to alcohol use. Level of exposure to alcohol was not found to significantly contribute to alcohol use. The authors believe that their results show peer relationships as a moderator to genetic dispositions for alcohol abuse and that their findings may generalize to other types of risk behaviors such as drug use, dietary habits, and sexual behaviors.

The mesosystem in the Bronfenbrenner theory is the layer that allows connections between the microsystems (Berk, 2007; Bronfenbrenner, 1979). The interactions between these structures are the keys to child development within the environment. For example, Caprara, Dodge, Pastorelli, and Zelli (2007) found that in early development one in three children engaged in marginally deviant levels of aggression; over time one fourth of these children engaged in seriously deviant behavior (aggression) as adolescents. The researchers believed that the children who developed serious aggressive behaviors were those that were exposed to environments where such behaviors were modeled and expected. These environments can include the home and the community.

Bronfenbrenner's exosystem is defined by the larger social system in which the child does not function directly (Bronfenbrenner, 1979; Berk, 2007). The child feels the positive and negative forces involved with the interaction with his own system. For example, parent workplace schedules, available community resources, or socioeconomic class of the child's family can all have an impact on childhood development. For example, McLoyd (1998) found a link between socioeconomic status (SES) and children's emotional functioning. This link was partially mediated by harsh inconsistent parenting and elevated exposure to acute and chronic stressors. Using a twin study design, Caspi, Taylor, Moffitt, and Plomin (2000) found evidence that growing up in an impoverished environment was linked to poor mental health in ways that could not be accounted for by genetics or family environment. In another exosystem level study, neighborhood-level informal social control and cohesion have been found to buffer the harmful effects of low SES on children (Odgers et al., 2009). Informal social control involves individuals and groups bringing about conformity to laws and social norms through community pressure, bystander interventions, or a collective response (Conklin, 2007). Also, a child's levels of antisocial behavior tended to decline at a greater rate in low SES communities with greater informal social control and cohesion (Odgers et al., 2009).

The macrosystem in the Bronfenbrenner theory is the outermost layer of cultural values, customs, and laws (Bronfenbrenner, 1979; Berk, 2007). For example, a society's idea about the degree to which parents should be able take care of their family and children. Another example is the beliefs society has about adolescent sex offenders and how these beliefs are manifested in laws and policies. According to Chaffin (2008)

adolescent sex offenders are subjects of misperceived risk (see below), misperceived uniqueness (i.e. that they differ significantly from other troubled peers), misperceived homogeneity (i.e. all sex offenders are similar), and misperceived intransigence (i.e. sex offending behavior in adolescents is resistant to change). Because of these misperceptions, society often believes that these young people are engaged in intractable, highly deviant behaviors. As a result of cultural beliefs, adolescent sex offenders are subjected to consequences, such as sex offender registries, that can be overly punitive (Jones, 2007) and legal interventions that do not take unique developmental factors into consideration (Letourneau & Miner, 2005)

Finally, within the Ecological Systems Theory, the chronosystem is the system that encompasses the dimensions of time as it is related to a child's environment. When studying adolescent problem behaviors, such as sex offending, it is important to understand the degree to which the behavior might be transient in nature and subsequently disappear with age. According to Chaffin (2008), research studies indicate that adolescent sex offenders who have received a negative consequence for their offence do not reoffend later. This review of the literature found that the rate of sexual reoffending to be between 5% and 15%. A longitudinal study by Vandiver (2006) followed 300 registered sex offender adolescents through adulthood and found that only 13 were rearrested for sex offenses. However, 52.6% were arrested for non-sex offences. The adolescents who had committed sex offences at the youngest ages were the most likely to reoffend sexually. Those who offended later were more likely to engage in general deviance behaviors rather than specific deviance behaviors. Similar results were found by Wiesner and Capaldi (2003).

Within the context of Bronfenbrenner's (1979) ecologic systems theory many environmental factors have been found to be correlated with adolescent sex offending. For example, van Wijk, Loeber, Vermeiren, Pardini, Bullens, and Doreleijers (2005) found that adolescent sex offenders often come from low SES homes, single parent families and from houses and apartments that are smaller in size. Similarly, family instability and disorganization were found to be prevalent for adolescent sex offenders (Miner, Siekert, & Ackland, 1997). Netland and Miner (2007) found that adolescent child and peer sex offenders were more likely to have biological mothers with mental health problems and that they were more likely to have been placed in foster care compared to adolescent non-sexual offending delinquents. In the same study, adolescent peer sex offenders were found to come from homes that were significantly less stable than those of adolescent non-sexual offending delinquents.

For positive development to occur, Bronfenbrenner (1979) believes that 5 propositions are important for child development. First, a child must have long term interactions with adult(s) who have a stake in the child's development, and strong relationships that are meant to last a lifetime. Second, strong relationships and interpersonal interactions will help the child interact with features in the mesosystem such as educational systems and the community. Third, attachment and interactions with adults will help the child progress to more complex relationships with peers. Fourth, the relationships between the child and his/her primary adults will progress only with repeated two-way interactions between the child and adults and that involve mutual compromise. Finally the relationship between the child and adults in his or her life require a public attitude of support and affirmation of the importance of those roles.

Bronfenbrenner believes that the instability and unpredictability of modern family life is the most destructive force to a child's development. The five propositions are important within the context of sex offending for many of the reasons described in the Ecological Systems Model (i.e. adequate adult supervision, appropriate role modeling by adults, development of an internalized sense of attachment, and a society that concerns itself with the well-being of children).

In conclusion, ecological systems theory helps to explain behavior based on environmental factors.

- Maternal traits that influence parenting (e.g. maternal warmth) appear to contribute to the development of externalizing behaviors (Deater-Deckard, 2000; Deater-Deckard et al., 2006). However, being raised by a mother with a history of major depression may increase the risk of adolescents developing depression and disruptive behavior disorders (Tully et al., 2008). Caregiver interactions can predict academic success of adolescents (Benner et al., 2008; Stone, 2007). Adolescent alcohol use is influenced by peer alcohol use (Guo et al., 2009).
- Low SES contributes to poor mental health (Caspi et al., 2000; McLoyd, 1998). Neighborhood-level informal social control and cohesion appears to buffer the harmful effects of low SES on young people (Odgers et al., 2009).
- Adolescent sex offenders often come from environments that contribute to mental health concerns and problem behaviors (Miner et al., 1997; Netland & Miner, 2007; Wijk et al., 2005)

To frame the literature review on adolescent sex offending behaviors, information about biological and theoretical models have been presented. As with many areas of psychology, the study of adolescent sex offenders is informed by several scientific disciplines that allow researchers, prevention advocates, and practitioners to better understand the environmental and biological components that contribute to dysfunctional behavior. This interdisciplinary perspective informs our understanding of adolescent sex offending behaviors.

### **Research on Adolescent Sex Offending**

Theoretical models play an important role in driving research. Research in adolescent sex offending will benefit from acknowledging and incorporating models and theories from youth development. An understanding of sexually aggressive behavior will likely be a continued amalgamation of what is already known about young people with that which has yet to be discovered.

While theoretical models related to sexual aggression against adult women have been empirically investigated (Heavey & Linz, 1993; White & Humprey, 1990), models of adolescent sex offending have undergone less study. Two plausible models of sex offending etiology that need support through research are Finkelhor's Four Preconditions model (1984) and Marshall and Barbaree's (1990) Integrated Theory. According to Finkelhor and colleagues, adolescent sex offenders 1) have specific characteristics (e.g. deficits in social and assertiveness skills) and histories of non-sexual deviance, 2) have dysfunctional family relationships, 3) are isolated from male and female peers and exhibit antisocial behavior, and 4) are exposed to proximal environmental factors necessary for perpetration (e. g. someone to abuse and a lack of

supervision). The Finkelhor model highlights the importance of developing social skills, healthy peer and romantic relationships, and healthy family relationships. Marshall and Barbaree's theory (explained previously in the attachment theory section) is related more specifically to parenting style, child-caregiver attachment, and how the parent-child relationship dynamic continues to influence future self-perceptions and relationships. While these theories are made reference to in the adolescent sexual offending research literature, the majority of the research is still exploratory and tends to study institutional records or survey data to better understand adolescent sex offending. The following review of research literature includes studies related to understanding the differences and similarities between adolescent sex offenders and non-sexual delinquents, and to understand differences among various types of adolescent sex offenders.

**Male adolescent sex offenders and non-sexual delinquents.** Many studies have been conducted in an attempt to understand the differences between juveniles who commit sex offences and those who commit acts of delinquency unrelated to sex or sexuality (e. g. Jonson-Reid & Way, 2001; Lightfoot & Evans, 2000; Miner & Munns, 2005; van Wijk, et al. 2005). To develop effective prevention and treatment interventions it is important to understand the degree to which young sex offenders differ from adolescent patterns of antisocial behavior that contributes to non-sexual offending.

Studies have been conducted in an attempt to understand the differences between juveniles who commit sex offences and those who commit acts of delinquency unrelated to sex. Miner and Munns (2005) used three variables from Elliot, Ageton and

Canter's (1979) integrated model of the etiology of delinquent behavior: conventional attitudes, normlessness, and social isolation to explore how male adolescent sex offenders, juvenile delinquents, and nondelinquents were similar and different. Seventy eight adolescent sex offenders (33% outpatient, 67% inpatient) from a Midwestern state were compared with a group of adolescents from the Denver Neighborhood Study (Huizinga, Esbsensen, & Weiher, 1994). These participants were from Denver County and consisted of 156 juvenile delinquents and 80 nondelinquents.

Between January and December of 1995 data were collected from male adolescent sex offenders, juvenile delinquents, and nondelinquents *The Denver Youth Survey* (Huizinga, Esbsensen, & Weiher, 1994) was administered using a structured face-to-face interview. This survey was used to assess conventional attitudes (i.e. importance placed on socially prescribed goals), family normlessness, school normlessness, peer normlessness, family isolation, school isolation, and peer isolation. Normlessness refers to accepting and engaging in socially unapproved behavior (e.g. cheating, stealing, lying, etc.) to achieve goals. No differences were found among the three groups in conventional attitudes. However, sex offenders and juvenile delinquents showed greater school normlessness than nondelinquents, and adolescent sex offenders showed greater peer normlessness than both juvenile delinquents and nondelinquents. Adolescent sex offenders perceived themselves as more isolated than juvenile delinquents and nondelinquents with regard to their families, their schools, and among their peers. The authors believed that these results suggest that interpersonal factors, along with normlessness and a lack of social control, contribute to inappropriate sexual behavior.



Limitations of this study include the following: a) adolescent sex offender participants may have perceived themselves as more isolated than they actually were because of the stigma attached to their sex offense behavior, b) participants were drawn from different geographic locations and had significantly different ethnic distributions, region and ethnicity that may have contributed to differences within the sample, limiting generalization of results to youths in other locations, c) data are based on the youths' self-report which can be inaccurate (Dhawan & Marshall, 1996), and d) differences among types of sex offenders (i.e. child vs. peer, inpatient vs. outpatient) were not reported, thus, the results could be interpreted differently if different sex offender types were considered in the analysis.

In an attempt to understand the variables that contribute to sexual offending in children and adolescents, Lightfoot and Evans (2000) compared a group of 20 sexually abusive youngsters with a matched group of clinically referred youngsters who had a diagnosis of conduct disorder. The sexually abusive group consisted of 12 boys and 8 girls, fourteen were New Zealand European and 6 were Maori. Their ages ranged from 7 to 16 years. Because the clinically-referred group (conduct disorder) was matched with the sexually abusive group, they were demographically the same on the dimensions of age, sex, and race.

A number of measures were developed by the investigators to assess the following: SES, patterns and history of family relationships, history of trauma, disrupted attachment, school progress, and self-perception and support. The authors also used or adapted the following measures: *Strengths Questionnaire* (Williams & McGee, 1991), *Social Support Questionnaire* (Sarason, Levine, Basham, & Sarason,

1983), *Support Seeking and Proximity Seeking Scale* (Paterson, Field, & Pryor, 1994), and the *Child Behavior Checklist* (CBCL; Achenbach, 1991). According to the authors, sexually abusive youngsters, as opposed to youngsters diagnosed with conduct disorders, had multiple disruptions of attachment, failed to make use of available social support, lacked a stable caregiver environment, had parents who were more likely to have suffered from psychiatric illness, and were often raised by adults who had been sexually abused.

Limitations to the study include: a) small sample sizes (N= 20 for each of the two groups), b) subjects were both male and female [there is evidence that male and female adolescent sex offenders differ significantly from one another (Schwartz, Cavanaugh, Pimental, & Prentky,2006)], c) the sample was drawn from a wide age range (i.e. 7 to 16 years), and may fail to recognize specific developmental stages that may contribute to problem behaviors, d) generalizations to other groups of adolescents should be made with caution because of the heterogeneity of the sample, e) much of the data was self-reported which can be inaccurate (Dhawan & Marshall, 1996), f) while the study looked at how environmental factors contributed to antisocial behaviors, it did not investigate how factors unique to the participants (e.g. temperament and impulsivity) may have contributed to their receiving inadequate support from primary caregivers and other adults.

To understand the differences between juvenile sex offender and non-sexual delinquents, van Wijk et al. (2005) compared 39 violent male sex offenders with 430 violent juvenile non-sex offenders. Participants were drawn from the *Pittsburgh Youth*

*Study*, a longitudinal study assessing the development of antisocial and delinquent behavior in boys (Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998).

Comparisons were made between moderate/minor non-sexual offenders, violent sex offenders, and violent non-sex offenders on 66 measures of child delinquency, child substance abuse, child emotional/behavioral problems, child sexual behavior, family factors, and demographic factors. Each measure was informed by multiple questions in an interview with the participant, and the participant's parent and teacher. As predicted, violent offenders differed from moderate/minor offenders on most of the measures (54 of 66). When comparing violent non-sexual offenders to violent sexual offenders, there were differences on only 6 measures. On these 6 measures, researchers found that sex offenders were more likely to have run away from home, have low levels of parental discipline in their homes, have higher levels of academic achievement, come from safer/more affluent neighborhoods, and have less educated and younger mothers.

Limitations to this study include that all subjects lived in Pittsburgh thus limiting generalizability. Also, the study compares groups that were created for the study (i.e. violent non-sex offenders versus mild/moderate offenders). The study involves sex offenders whose assaults were clearly aggressive; it is unclear if the results would generalize to less aggressive sexual assault offenses or noncontact offending (e.g. exhibitionism and voyeurism).

Jonson-Reid and Way (2001) were interested in understanding how adolescent sex offenders compared to other incarcerated peers on measures of prior childhood maltreatment and involvement with child welfare and the juvenile justice system. The subject pool came from the California Youth Authority, a part of the California juvenile

justice system that deals with violent gang members, sex offenders, and violent repeat offenders (N = 6,082). Archival data were examined for males between the ages of 11–18 yrs. Offences were broken into categories of sexual, violent, and property/drug offenses. The percentage of Hispanics in the study (30%) was higher than the proportions reported nationally for juvenile offenders (9%). Correspondingly, the proportion of African American (11%) and Caucasian (46%) adolescents was lower than reported for delinquent youths of these ethnicities nationally (26% and 56% respectively).

The dependent variable for the study was offender type (violent, sexual, property/drug). The independent variables were maltreatment history (i.e. the presence or absence of an investigated report of abuse or neglect prior to the date of the commitment offense), maltreatment type (i.e. neglect, physical abuse, or sexual abuse), and recurrent maltreatment (i.e. the existence of a child abuse or neglect report at least five days after the prior report). Offender type was compared with the independent variables using logistical regression models. Victims of neglect who had at least two or more maltreatment reports were more likely to be sex offenders and were more likely to describe their maltreatment as being sexual or physical abuse. According to the authors these results give evidence that sex offenders may be more likely to follow a pattern of victim to victimizer than other types of adolescent offenders. Sexual offenders were also more likely than the other types of offenders to have received special education services for significant emotional disturbances and were usually incarcerated later in life compared to other types of delinquents.

Limitations to the study include that the racial make up for California is different than that of other geographic regions of the U.S. and therefore, the results may not generalize to different locales. Also, the types of adolescents studied had all been incarcerated. For this reason, it would be unwise to make similar assumptions about non-incarcerated offenders. The authors did not rate the severity of the maltreatment the offenders received or from whom they received maltreatment. Knowing this information might allow for a greater understanding of what types of maltreatment have the greatest affect on adolescents. It is likely that there was overlap among the dependent variables (i.e. offence type); the offender types depicted in this study may have important similarities that were not investigated.

Butler and Seto (2002) were interested in studying the non-sexual offense histories of adolescent sex offenders. Participants were 32 sex offenders, 48 criminally versatile offenders (charged with victim and nonvictim crimes), and 34 non-aggressive offenders (charged with nonvictim crimes). Sex offenders were further characterized as having sex crimes only or sex crime plus non-sex offense histories. The participants were referred from the Family Court Clinic in Toronto, Canada.

Information about childhood conduct problems was quantified using the criteria for oppositional defiant disorder and conduct disorder as defined by the *Diagnostic and Statistical Manual, Fourth Edition, Text Revision* (DSM-IV-TR; American Psychiatric Association, 2000). Current behavioral adjustment was determined using the *Youth Self-Report* (YSR; Achenbach & Edelbrock, 1987). Antisocial attitudes and beliefs were measured with the *Criminal Sentiments Scale* (CSS; Shields & Simourd, 1991). Risk for future delinquency was assessed using the *Young Offender-Level of Service*

*Inventory* (YO-LSI; Shields, 1993). Sex offenders who had also committed non-sex crimes were found to be similar to non-sex offender delinquents on measures of childhood conduct problems, behavioral adjustment, and pro-criminal attitudes/beliefs. However, sex offenders in general were found to have a lower predicted risk of future delinquent acts. Sex offender only adolescents had higher levels of prosocial attitudes/beliefs and were predicted to be less likely to engage in delinquent acts than sex plus non-sex offending delinquents.

Limitations of the study include a small sample size for the sex offender group ( $n = 32$ ). A larger sample size would provide increased statistical power to identify group differences. Since the research was done in Toronto, it may not generalize to adolescents from other locations. Finally, a result showing that adolescent sex offenders who also engaged in non-sex delinquent acts tended to be more antisocial was quite predictable based on how the antisocial construct was defined. It is important that future research examine factors that may cause the differences in different types of adolescent sex offenders.

Miner and colleagues (2010) were interested in using empirical methods to investigate Marshall and Barbaree's (1990) Integrated Theory of sexual abuse perpetration. Three groups of adolescent males (i. e. sex offenders with child victims, sex offenders with peer/adult victims, and non-sex delinquent youths) aged 13-18 were compared in a cross-sectional design. Participant attachment style was coded by blind, independent raters that listened to semi-structured interviews that asked questions related attachment style. Participants also completed a 228 Likert-type scale and free response item computerized survey consisting of a subset of items from the *Denver*

*Youth Survey* (DYS; Huizinga, Esbensen, & Walher, 1994), the *Cynicism Scale of the Minnesota Multiphasic Personality Inventory, Adolescent version* (MMPI-A; Butcher, Williams, Graham, Archer, Tellegen, Ben-Porath et al., 1992), and the *Multidimensional Inventory of Development, Sex and Aggression* (MIDSA; MIDSA Clinical Manual, 2007).

Anxious attachment styles were found to have an indirect effect on sex offending behaviors. Attachment anxiety was accounted for by feelings of interpersonal inadequacy on the *DYS*, difficulty relating to females (MIDSA), and feelings of inadequacy in masculine roles (MIDSA). Sexual perpetration was found to be negatively related to cynical, misanthropic views of others (MMPI-A). Sexual abuse of children was found to be related to higher levels of sexual appetite and preoccupation (MIDSA). The results support the theory that adolescent sex offenders who are at a disadvantage to same-age peers in interpersonal relationships because of their anxious attachment style, subsequently turn to children to meet intimacy and interpersonal closeness needs out of a fear of rejection.

One major limitation of this study is the cross-sectional design showing how variables relate to each other at one period in time; however, the etiology of sexual offending cannot be determined from this methodology. Also, participation was voluntary which creates the potential for a bias sample. Finally, the relatively small number of adolescent sex offenders with peer/adult victims makes it difficult to interpret differences between this group and both the sex offender with child victims and the non-sexual delinquents because of poor statistical power.

Van Wijk, Blokland, Duits, Vermeiren, and Harkink (2007) were interested in looking at the relationships between psychiatric disorders and offence characteristics between sex offenders and non-sex offending delinquents. Data were collected from Dutch Forensic Psychiatric Services files for five participant groups: 304 violent sex offenders, 134 non-violent sex offenders, 270 sex offenders against children, 3148 non-sex violent offenders, and 1620 offenders whose crimes did not involve interpersonal contact. The analyses included all adolescent males aged 12-20 years who had undergone court appointed evaluation during the years 1999 to 2003. The mean ages for the five groups ranged from 16.4 years for child molesters to 17.2 years for violent offenders. Institutional records were assessed to determine relationships between type of offence, psychiatric diagnosis using the *Diagnostic and Statistical Manual, Forth Edition* (DSM-IV; American Psychiatric Association, 1994), and intelligence using the *Wechsler Intelligence Scale for Children 3rd Edition* (WISC-III; Wechsler, 1991), and *Wechsler Adult Intelligence Scale, 3rd Edition* (WAIS-III; Wechsler, 1992). Non-linear partial discriminant analysis was used using the computer program OVERALS for SPSS.

Van Wijk and colleagues (2007) found sex offenders to be a distinct group of juvenile delinquents. Specifically, disorders associated with low intelligence (e.g. pervasive developmental disorder, mild mental retardation) were more common in non-violent and child sex offenders. Violent sex offences were more typical of adolescents from immigrant backgrounds. Diagnoses of drug abuse, alcohol abuse, and conduct disorder were more common for non-sex delinquents. Paraphilia diagnoses were more common for sex offenders.



One of the limitations of the study was that psychiatric classifications were based on the DSM-IV using clinical judgment rather than a standardized instrument for psychiatric evaluation. According to Meehl (1996) standardized instruments outperform clinical judgment in making psychiatric diagnoses. In addition, just one primary Axis I (clinical disorders, including major mental disorders, as well as developmental and learning disorders) or Axis II (underlying pervasive or personality conditions, as well as mental retardation) diagnosis was assigned to each study participant. However, psychiatric comorbidity is common for many juvenile delinquents (Rucklin, Vermeiren, Schwab-Stone, & Kopolov, 2003). Also, participants were classified based on the index crime listed in their record. Some misclassifications are likely since not all participant offences were part of their records. Finally, these results may be country specific and may not generalize to other areas of the world.

Zakireh, Ronis, and Knight (2008) were interested in the individual beliefs, attitudes, and victimization histories of male adolescent sex offenders. The total number of subjects in the study were 100 males, 25 were sex offenders in residential treatment, 25 sex offenders receiving outpatient treatment, 25 non-sexual offenders in residential treatment, and 25 non-sexual offenders in outpatient treatment. Participant data were acquired using the *Multidimensional Assessment of Sex and Aggression* (MASA; Knight, Prentky, & Cerce, 1994) and the *Millon Adolescent Clinical Inventory* (MACI; Millon, 1994). Participants were 13-19 years old and chosen at random from nine different institutions in northeastern states. Using the WISC-III (Wechsler, 1991) and WAIS-III (Wechsler, 1992) all participants were determined to have IQ scores

greater than 70. Multivariate analyses of variance were used to compare the four groups of adolescent participants on the MASA and MACI measures.

Sex offenders in inpatient treatment reported more significant problems such as increased sexualization, presence of paraphilias (i.e. need for unusual sexual stimulation), pervasive anger, history of childhood abuse, and presence of sadism (i.e. engaging in cruelty for pleasure). The measures showed few differences between outpatient sex offenders and non-sexual offending adolescents on measures MACI and WISC-III. Adolescent sex offenders and non-sexual offenders in residential treatment were found to score significantly higher in the domains of callousness, unemotionality, and antisocial behavior when compared to offenders (both sex and non-sexual) who were in outpatient treatment programs. The authors conclude that the results provide evidence that adolescents receiving outpatient treatment may have similar mental health issues as non-sexual offenders in outpatient treatment programs related to general antisocial behavior. Adolescents in residential treatment with a history of sex offending rated higher on measures of hypersexuality and sexual deviance, engaged in more violent behaviors or fantasies, and had an elevated history of victimization when compared to non-sexual offenders in residential treatment. According to the authors, adolescents in residential sex offender treatment programs likely have the most significant treatment needs of the four groups studied.

The measures used in the study do not reflect all possible factors that may contribute to adolescent sex offending. For example, family environment may have contributed to antisocial behaviors and may better explain the etiology of these behaviors. These results give evidence of a relationship between variables but do not

suggest directionality or a causal link between the measures and participant group designation. In the future, it will be important to also obtain results from a comparison group of adolescents who are not involved in sexual offending or delinquency.

Ronis and Bourdoin (2007) were interested in determining if there were significant differences in the individual adjustment, interpersonal relationships, and academic performance in a group of 115 adolescent males. Participants were divided into 5 matched groups (i.e. sex offenders with peer or adult victims, sex offenders with child victims, violent non-sexual delinquents, nonviolent non-sexual delinquents, and nondelinquent adolescents). Participants were males from Missouri and ranged in age from 10-17 years. Each group consisted of 23 participants. Participant groups were matched as closely as possible on age, social class, race, and number of parents.

Information was collected from parents, adolescent participants, teachers of the adolescents, and videotaped interaction tasks between the participant and his caregiver to assess behavior. The measure of individual adjustment was the *Revised Behavioral Problem Checklist* (RBPC; Quay & Peterson, 1987). The *Family Adaptability and Cohesion Evaluation Scales-II* (FACES-II; Olson, Portner, & Bell, 1982) and the *Unrevealed Differences Questionnaire-Revised* (URD-R; Bourduin, Mann, Cone, & Henggeler, 1995) were used to measure familial negative affect, facilitation of communication, and family relations. The *Missouri Peer Relations Inventory* (MPRI; Bordin, Blaske, Cone, Mann, & Hazelrigg, 1989) was given to parents and teachers to evaluate the peer relationships of the participants. Academic performance was measured by grades received in math, English, social studies, and science. Adolescent sex offenders and non-sexual delinquents had more problem behaviors (i.e. anxiety-

withdrawal problems, attention problems, conduct disorders, and social aggression).

Adolescent sex offenders and non-sexual delinquents had more relationship problems with peers and parents, and poorer academic performance compared to adolescents who were not delinquents. Adolescent sex offenders were not found to differ from non-sexual delinquent adolescents on any measures of individual or interpersonal adjustment.

Although the study did not find differences between adolescent sex offenders and adolescent delinquents that does not necessarily preclude differences on other measures such as exposure to sexual deviance or significant early life environmental stressors which were not studied. All of the sexual offenders in this study had been arrested at least twice. There is evidence that adolescent sex offenders with one arrest are less likely to have a history of non-sexual offences than adolescents with a history of multiple arrests for sexual offences (Seto & Lalumière, 2006).

In summary, research on adolescent male sex offenders suggests that this population is unique because they are delinquent, but they differ psychologically from non-sex offending delinquents.

- Male adolescent sex offenders describe themselves as socially isolated and engaging in socially unapproved behaviors (Miner & Munns, 2005).
- There is evidence that male adolescent sex offenders grow up in unstable family environments, lack secure attachments, and have been raised by parents who lacked appropriate parenting skills (Lightfoot & Evans, 2000).
- Unlike male non-sex adolescent delinquents, adolescent male sex offenders appear to struggle with preoccupations of sex and feelings of inadequacy,

but they also tend to have positive attitudes toward others (Miner et al. 2010).

- Adolescent sex offenders are more likely to follow a victim to victimizer pattern of behavior than non-sexual delinquents (Jonson-Reid & Way, 2001).
- Adolescent sex offenders were more likely to have received services for significant emotional problems and to have been incarcerated later in life compared to non-sexual delinquents (Jonson-Reid & Way, 2001).
- Sexual offenders, who also have a history of non-sex delinquency offenses, are more likely to engage in future non-sexual delinquent acts (Butler & Seto, 2002).
- A diagnosis of a developmental disability may contribute to an increased likelihood for adolescents to engaging in sexual aggression. (van Wijk et al., 2007).
- There is evidence that male adolescent sex offenders and non-sexual delinquents in outpatient treatment may have similar mental health needs (Zakireh et al., 2008).
- Adolescents in residential treatment with a history of sex offending rated higher on measures of hypersexuality and sexual deviance, had engaged in violent behaviors or fantasies, and had an increased history of victimization when compared with non-sexual offenders in residential treatment (Zakireh et al., 2008).

- Adolescent sex offenders and adolescent non-sexual offenders may have similar challenges regarding anxiety, attention problems, conduct disorder, socialized aggression, relationship problems with peers and parents, and poorer academic performance (Ronis & Bourdoin, 2007).
- Sex offenders (compared to violent non-sexual offenders) were more likely to have run away from home, have low levels of parental discipline, have higher levels of academic achievement, come from safer/more affluent neighborhoods, and have less educated and younger mothers (van Wijk et al., 2005).
- Research suggests similarities and differences between adolescent sex offenders and non-sexual delinquent offenders.

**Differences among types of male adolescent sex offenders.** While information accumulates on the differences and similarities between sexual and non-sexual adolescent male offenders, others have tried to identify differences among adolescent male sex offender subgroups. Schwartz et al. (2006) reviewed records of 659 boys and 154 girls who sexually abused children, to identify precursors to sex offending. The subjects had been evaluated between 1998 and 2004 by a Massachusetts program, *Assessment for Safe and Appropriate Placement* (ASAP; Pollinger, Samuals, & Stadolnik, 2005), which was developed to manage and better care for young people who had been removed from highly abusive homes. Only youth who had begun to engage in sexually inappropriate or coercive behaviors were evaluated. The youth (males and females) consisted of 60% Caucasians and 12% African Americans; however, there were racial differences between males and females. The boys ranged in

age from 2 to 17 years ( $M = 9.8$ ,  $SD = 3.3$ ); girls ranged in age from 3 to 17 years ( $M = 9.6$ ,  $SD = 3.3$ ).

The authors used ASAP program records to evaluate neurological developmental and cognitive deficits (e. g. caused by pregnancy and birth complications, alcohol and drug abuse of mother during pregnancy) and special education classes caregiver and placement history (e. g. age of first foster placement, number of foster placements), and abuse history (e. g. physical, psychological, and sexual abuse, and severity of abuse). The review of records showed that all children had experienced exceptionally high levels of caregiver instability and high rates of severe maltreatment which likely contributed to significant psychiatric symptoms. When severe maltreatment occurred in early childhood, female participants were more likely to be sexually abusive to other children. Girls were also more likely to be sexually abused. When sexual abuse was present, it tended to last longer for girls, be more severe, and involve more perpetrators. In general, girls were also more likely to have witnessed more domestic violence and sexual deviance in their homes than did boys.

Limitations of this study include the ability to generalize these results to other young people. All of the subjects were wards of the state, which meant they were placed under the protection of a legal guardian rather than caregivers who had initially raised them. There may also be regional differences between these young people from Massachusetts and people from other locations. Because of the extent and multifaceted nature of their maltreatment, it is difficult to compare this group to other less abused

youths. Finally, the cross sectional nature of this study does not allow one to know if the inappropriate sexual behaviors were acute or chronic.

DiGiorgio-Miller (2007) examined the relationship between male adolescent sex offender treatment program settings (inpatient and outpatient), sexual fantasies (deviant and non-deviant) and self-reported levels of hostility and loneliness. Participants included 33 adolescent male sex offenders from inpatient treatment facilities in Massachusetts and New Jersey. Thirty-three suburban and rural adolescent sex offenders from New Jersey outpatient treatment programs served as the comparison group. The average age of the inpatient group was 15.3 years ( $SD = 1.5$ ) and the mean number of offences was 16.4 ( $SD = 12.6$ ). Outpatient participants' average age was 15.9 ( $SD = 1.8$ ) and the mean number of offences was 4.3 ( $SD = 3.2$ ). The aforementioned dependent variables were measured using the *Sexual Fantasies Questionnaire* (Daleiden, Kaufman, Hilliker, & O'Neil, 1998), the *University of California, Los Angeles Loneliness Scale* (Archibald, Bartholomew, & Marx, 1995), and the *Buss-Durkee Hostility Inventory* (Buss & Durkee, 1957).

A one-way multivariate analysis of variance was conducted; the independent variables were setting (inpatient and outpatient) while fantasies (deviant and nondeviant), hostility, and loneliness served as the dependent variables. The inpatient sample was found to engage in higher rates of deviant sexual fantasies, compared to outpatients, and a higher number of deviant fantasies correlated with number of victims, number of offenses, and feelings of hostility. However, adolescent inpatients high on deviant fantasies relative to outpatient participants also had a high number of non-deviant fantasies. For this reason, the author concludes that residential offenders'



sexual thoughts are more compulsive. The author also found that adolescents who reported elevated levels of hostility, most commonly inpatient participants, also reported elevated levels of loneliness.

The voluntary nature of participation in the study may not generalize to all adolescences in sex offender programs. No causal association can be made between the correlations of participant type and measures of hostility, fantasies, and loneliness. A positive correlation between non-deviant sexual fantasies and age of the offender was found but was not addressed by the author. To understand these results in more depth, it will be important for future studies to address whether behavioral differences are associated with specific attachment or coping styles. Nonetheless, the study gives new insight into differences between inpatient and outpatient adolescent sex offenders.

Hummel, Thömke, Oldenbürger, and Specht (2000) attempted to determine the differences and similarities between male adolescent sex offenders who have a history of being sexually abused and those who were not. The study compared 16 male adolescent sex offenders with a history of sexual abuse to 18 male adolescent sex offenders without a history of sexual abuse. The study was conducted in Germany; all subjects were male, had offended against children, and were between 14 and 20 years of age when the offence was committed. All subjects were of average intellectual ability and had physical contact, ranging from molestation to rape, with their victims. Data were obtained from parents, subjects, social services, and medical records. Data collected included offender physical, educational and social development, parental characteristics, and nature of family interactions. The results showed that the main difference between the two groups was that the sex offenders who had been sexually

abused were much more likely to have lost one or both parents before the age of fourteen (i.e. death, fostering, divorce, separation). Similarly, those who had been sexually victimized discussed much more discontinuity of care than the non-victimized group. The authors concluded that the results support the belief that parental loss and poor attachment relationships are associated with sexual abuse. The level of perceived peer social support and assertiveness was low for both groups of adolescents; however, they were significantly lower for those who had been sexually abused. The authors hypothesized that sexually abused adolescents may engage in sexual offending behavior because they perceive themselves as having little ability to develop appropriate intimate relationships with peers.

Limitations of the study include that the results may not generalize to adolescents who have offended against a similarly aged peer because participants in this study only offended against children. The heterogeneity of the types of offenses and treatment programs the subjects attended make it difficult to ascertain to whom this research can be best generalized. The information obtained from parents and adolescents on family dynamics were not always checked for reliability. Baker, Tabacoff, Tornusciolo, and Eisenstadt (2003) have found that families of juvenile sexual offenders tend to tell more lies and be more secretive than other types of families. Despite these limitations, the study delineates two different paths to sexual offending behavior by adolescents: impaired relationships with primary caregivers and poor development of social skills and self-efficacy.

Worling (1995) was interested in studying the differences between adolescent male sex offenders who sexually assault their younger siblings (N = 32) and those who

sexually assaulted non-siblings. The adolescents were from the *Sexual Abuse: Family Education & Treatment Program* (SAFE-T; Worling, & Curwen, 2000) in Ontario, Canada. The subjects were at least 13 years old and at least 4 years older than their victims at the time of assault.

Dependent variable measures included the *Assessing Environments-III Scale* (AEIII; Berger, Knutson, Mehm, & Perkins, 1988) to measure punitive experiences such a negative family atmosphere, physical punishment, marital discord, and feelings of parental rejection. The *Family of Origin Scale* (FOS; Hovestadt, Anderson, Piercy, Cochran, & Fine, 1995) to measure levels of autonomy and family intimacy. The *Tennessee Self-Concept Scale* (TSCS; Roid & Fitts, 1988) and *Youth Self-Report* (YSR; Achenbach & Edelbrock, 1987) was used to measure social competence and levels of problem behavior. The *Buss-Durkee Hostility Inventory* (BDHI; Buss & Durkee, 1957), *Beck Depression Inventory* (BDI; Beck, Rush, Shaw, & Emery, 1979) and the *Blishen Scales* (Blishen & Carroll, 1978) measured hostility, depression, and socioeconomic status. Multivariate analysis of variance was used to analyze the data. The results showed that adolescents who abused siblings were exposed to higher levels of marital discord, parental rejection, physical discipline, negative family atmosphere, and they had general dissatisfaction with family relationships compared to adolescents who had sexually offended against non-siblings.

Limitations of the study include lack of generalizability since participants came from an inpatient facility in Ontario. Although significant results were found, other factors that were not measured may have also accounted for behavior differences between the two groups studied (sibling offenders and non-sibling offenders). For

example, a history of family sexual deviance or intra-generational incest (two factors not measured in this study) may have been significant reason for the differences between the two groups. Regardless, this study suggests that sexual offending is related to dysfunctional family systems rather than traits and behaviors specific to the offender.

In summary, adolescent sex offenders appear to be a heterogeneous group that can be differentiated from other groups of adolescent offenders.

- Inpatient sex offending adolescents engage in higher rates of deviant fantasies; higher rates of deviant fantasizing were positively correlated with number of victims, offences, and feelings of hostility (DiGiorgio-Miller, 2007).
- Parental loss and poor attachment with caregivers may leave a child susceptible to being sexually abused, contributing to a cycle of future perpetration (Hummel et al., 2000).
- Adolescent sex offenders who sexually abuse their siblings have had family and parental interactions that were more negative than that of offenders who were sexually abused outside of their family (Worling, 1995).
- Female adolescent sex offenders have been subjected to more intense and enduring sexual abuse and other forms of abuse than adolescent male sex offenders (Schwartz et al., 2006).

## Research on Psychopathy in Young People

In an attempt to determine the stability of psychopathy in young people, Salekin (2008) collected data on 130 children and adolescents over a 4 year period. Participants included 92 boys (70.8%) and 38 girls (29.2%) from a southeastern state. Their mean age was 14.9 ( $SD = 1.6$ ) and average level of education was 8.6 years ( $SD = 1.5$ ). Fifty one (39.2%) of the participants were African Americans, 9 (6.9%) were Caucasians, 62 (47.7%) were Hispanic Americans, 5 (3.9%) were Haitian Americans, and 3 were mixed ethnicity. Measures of psychopathy included the *Psychopathy Checklist: Youth Version* (PCL:YV; Forth, Kosson, & Hare, 2003) which is a semi-structured interview and collateral review of legal and psychological records, the *Antisocial Process Screening Device* (APSD; Frick & Hare, 2001) which is designed to collect information from parents and teachers about participant level of antisocial behavior, *Self-Report Psychopathy Scale II* (SRP-II; Hare, 1991), a 6 item self-report survey to assess tendencies to engage in psychopathic behaviors, and the *Personality Assessment Interview-Antisocial Scale* (PAI-ANT; Morey, 1991) which measured antisocial personality traits. Violent and nonviolent recidivism was measured at least 3 years from the original assessment (Median = 39 months, Range = 36-45 months). Data were also collected from institutional records regarding substance use history, intelligence, family structure, associating with delinquent peers, school absences, and past criminal charges. Recidivism information was obtained from the state juvenile corrections computer database. At follow-up, just over 50% of participants had more than one nonviolent offence. Also, at follow-up 41% had at least one violent offence and 31% more than one violent offence.

Using information from institutional records the author found that measures of intelligence, family structure, associating with delinquent peers, school absences, and past criminal charges did not predict future recidivism (non violent or violent). Girls were less likely to show recidivism. Participants involved in drug use were more likely to re-offend. The four psychopathy measures (PCL:YV; APSD; SRP-II; PAI-ANT) predicted future offending behavior, general and violent recidivism from mid-adolescence to young adulthood even after controlling for other variables (i.e. intelligence, family structure, associating with delinquent peers, school absences, and past criminal charges) theoretically linked to offending. The author concludes that adolescents with psychopathy traits create significant costs to communities and have poor potential for prosocial growth.

Limitations to this study include that the participants were from a southeastern state and overly represented by ethnic/racial minorities. Also, participants received their initial assessment because of a court order, and thus may be different from adolescents who did not receive a court mandated assessment. The sample size for girls was small, reducing statistical power. The study makes little reference to the etiology of psychopathy and potential interventions to prevent psychopathy traits. Nonetheless, the strength of this study is the effort it makes to account for factors previously considered to make a significant contribution to criminal recidivism.

O'Neill, Lidz, and Heilbrun (2003) developed a study to determine the relationship between substance abuse relapse and psychopathy. Participants were 64 males receiving partial hospitalization treatment for chemical addiction in a large eastern city. Participants were between the ages of 15 and 18 years and were court-

referred or referred by probations officers. All met the DSM-IV diagnostic criteria for substance abuse or substance dependence. Adolescents with violent offences, sex offences, arson charges, major mental health disorders, or limited English fluency were excluded from the study. Study assessments included the *Psychopathy Checklist: Youth Version* (PCL:YV; Forth et al., 2003) a semi-structured interview and collateral review of legal and psychological records. Substance use was measured by daily urinalysis (UA). Length of treatment was measured by days in an outpatient substance abuse treatment program. Program participation was rated based on behavior and level of participation ratings made by the treatment team in treatment groups, treatment programming, and individual therapy using a Likert-type scale (1 = very poor to 5 = excellent). Therapists ranked participants level of clinical improvement in their discharge summary using a Likert-type scale (1 = no improvement to 5 = very much improvement). Clinical recidivism was measured using criminal records during the 12 months following treatment. Approximately 52% of the participants were African American, 28% were Hispanic, and 20% were Caucasian. The mean age was 16.0 years ( $SD = 1.0$ ) and the mean school grade was 9.5 ( $SD = 1.0$ )

PCL:YV scores were negatively related to adolescent drug and alcohol abstinence, quality of participation in treatment for chemical dependency, clinical improvement, and positively related to re-arrest rate. High PCL:YV scores were related to higher rates of failed urine analyses during treatment indicating chemical use relapse. Participants with lower PCL:YV scores benefited from treatment on all measures. The authors suggest that their results speak to the need for mandated completion of more

intensive substance abuse treatment programs and more extensive supervision while on probation if adolescents are assessed to be high in psychopathic characteristics.

This study does not necessarily point to the continued success of treatment because no long-term follow up was done. The participants in this study represent a uniquely urban, racially diverse sample (i.e. low SES, majority non-White), thus the results may not generalize to other locals and populations that are more homogeneous. The adolescents who scored high on psychopathy characteristics may have failed to improve because antisocial behaviors made them difficult to treat. Chemical dependency treatment programs may benefit if they assess for and recognize psychopathic characteristics; chemical dependency treatment programs may also have more success if they acknowledged psychopathy traits and made appropriate changes to their clinical interventions to enhance the efficacy.

Lynam, Loeber, and Stouthamer-Loeber (2008) were interested in determining if there are moderators that mitigated the development of psychopathy. Adolescent (n = 250) males from a subsample of the Pittsburgh Youth Study (Loeber, Farrington, Stouthamer-Loeber, & van Kammen, 1998) assessed for psychopathy at 13 years of age using mother reports on the *Childhood Psychopathy Scale* (CPS; Lynam, 1997). The same participants were also assessed at 24 years of age using the *Psychopathy Checklist: Screening Version* (PCL:SV; Hart, Cox, & Hare, 1995). The two scales measure similar domains, as the CPS was based on the PCL:SV, but eliminated portions that applied to adults. Thirteen potential moderators were gathered from institutional records including demographic factors (i.e. race, family structure, family SES, and neighborhood SES), parenting factors (i.e. physical punishment, inconsistent discipline,



lax supervision, and positive parenting), peer delinquency, participant delinquency, and individual differences (i.e. verbal IQ, behavioral impulsivity, cognitive impulsivity).

The study had a high rate of attrition, in particular with African-American participants; initially 44% of participants were Caucasian and 56% African-American, at follow 53% of participants were Caucasian and 47% were African-American.

Physical punishment, peer delinquency, and family SES were found to contribute to the development of psychopathy in participants who showed low levels of psychopathy at age 13, but high levels of psychopathy at age 24. Psychopathy was shown to be moderately stable for those high in psychopathy from age 13 through age 24, with no factors moderating psychopathy. The authors conclude that some cases of adult psychopathy could have been prevented by environmental factors (e. g. not using physical punishment, better peer groups, higher socioeconomic status). However, the authors hypothesize that most cases of psychopathy require early detection and interventions for desirable outcomes because psychopathy at age 13 appears to remain stable through age 24.

Limitations to this study include, the loss of subjects at follow-up may have a different profile from those who remained in the study. Also, no females participated in the study. Generalizations from the study should be made with caution. The study made no effort to determine if moderators such as early onset of antisocial behaviors and substance abuse were associated with future psychopathy.

Dupéré, Lacourse, Willms, Vitaro, and Tremblay (2007) were interested in understanding the degree to which adolescent gang affiliation, psychopathic tendencies, and unstable neighborhoods were related. The project examined a subset of 3,522

adolescents from the National Longitudinal Survey of Children and Youth (NLSCY; Statistics Canada, 2005). At age 10-11 years participants were measured on psychopathic tendencies (parental-reports of hyperactivity, low-anxiety, and low pro-social behaviors), residential instability (number of moves before age 10-11 years), and family SES (parental education, parental professional attainment, and household income). At age 14-15 years participants were evaluated for gang membership, and neighborhood risk which consisted of six standardized census variables: neighborhood median income, percentage of income from government programs, unemployment rates, percentage of families headed by a single parent, resident transience, and percentage of renter-occupied dwellings.

Residents of unstable neighborhoods (i. e. high rates of resident transience) were at risk for joining gangs but only if psychopathic tendencies were found. SES was not associated with gang membership. The authors suggest that the results are related to a lack of investment by government institutions in communities with transient populations. Lack of investment includes financial investments such as community centers where young people receive supervision and social investments with adults working together to supervise youth. Participants involved in gang membership often came from single parent homes. The authors conclude that participants with high psychopathic tendencies are likely to be more difficult to supervise because of their defiant nature, and may be predisposed to seeking out gang affiliation where oppositional and antisocial behaviors are accepted.

This study had a high rate of attrition (4,302 participants initially, 3522 at final follow-up) and lost subjects may have a profile different from those who remained in

the study. Also, this study was conducted with a Canadian sample. Generalizations made about the study should be made with caution given these limitations.

Knight and Knight-Sims (2005) used structural equation modeling to determine if three traits known to predict adult male rape behavior also predicted adolescent peer/adult sex offending behavior. The traits of interest included two of the core processes identified in psychopathy: antisocial behavior, callousness/unemotionality, and a trait unrelated to psychopathy, sexual drive/preoccupation. Participants included 218 male adolescents from inpatient juvenile sexual offender treatment facilities in Maine, Massachusetts, Minnesota, and Virginia. Mean age for participants was 16.0 years and participants had been incarcerated an average of 3.1 times. Participants were identified as 8.9% African American, 9.9% Asian American, 28.3% Caucasian, 38.2% Hispanic, 3.7% Native American, and 11% other races. The authors used the *Multidimensional Assessment of Sex and Aggression* (MASA; Knight, Prentky, & Cerce, 1994), a computerized inventory that assesses multiple domains (e.g. sex drive, sexual preoccupation, and sexual compulsivity) relevant to sexual coercion.

The authors' found that, similar to their adult structural equation model, early childhood physical, verbal, and sexual abuse plus a callous/unemotional disposition combine to produce three latent traits that predict sexual aggression: (a) arrogant, deceitful personality/emotional detachment, (b) impulsivity/antisocial behaviors, and (c) sexual preoccupation/hypersexuality. This model has also shown reasonable fit with college students, community non-offenders, and non-sexual criminal samples (Knight & Sims-Knight, 2003). While emotional abuse (i.e. neglect and antipathy) was found to be a key contributing factor in the development of sexual aggression toward children,

psychopathy was found to be a factor in only one path of development for a subgroup of adolescents who sexually offend against children.

While Knight and Knight-Sims (2005) were able to find traits associated with sexual abuse by adolescents against peers or adults, using structural equation modeling, Daversa and Knight (2007) found four different developmental pathways that predicted sexual offending against children by adolescents. Although the structural equation model is believed to describe a causal pathway, all relationships are correlative and causation is not implied. This study provides insight into traits associated with adolescent sex offending against peers or adults. Future research that delineates the origins of the three latent traits that predicted sexual offending will be essential to informing prevention and treatment interventions.

Using retrospective data from case files, McCrory, Hickey, Farmer, and Vizard (2008) compared early and late onset sexual offenders on measures of family adversity (i.e. parental mental illness, personality disorder, post-natal depression, suicide attempts, inconsistent parenting, lack of parental supervision, inadequate family sexual boundaries), neuropsychological impairment (history of non-sexual abuse, difficult temperament, special education, hyperactivity), psychological functioning including history and age of treatment for mental health problems and psychopathy measured by the *Psychopathy Check List: Youth Version* (PCL:YV; Forth, Kosson, & Hare, 2003), and behavioral measures (sexually harmful behaviors and antisocial behaviors). The study included 100 male participants (88% White, 5% African American, 7% were ethnicities) who had engaged in sexually harmful behavior before the age of 10 (early onset); 137 participants (78% were White, 11% African American, 11% other

ethnicities) who had engaged in sexually harmful behavior after the age of 10 (late onset). The majority of participants were assessed in mid adolescence.

The early onset group was found to have significantly higher rates of childhood maltreatment, difficult temperament, aggressive behaviors, hyperactivity, educational difficulties, and mental health problems. The early onset group also showed more continuity in their antisocial behaviors and scored significantly higher on the measure of psychopathy (PCL:YV). The authors suggest that the study provides evidence that early onset of sexually harmful behaviors is a clinical marker for antisocial behaviors.

Limitations of this study include that the participants had more significant emotional/behavioral/cognitive impairments than are typical for most young sex offenders. Participants were from the United Kingdom and may differ from other young people from other parts of the world. The etiology of sexual offending cannot be determined from the results of a cross sectional study such as this one. However, it does give insight into factors that are associated with early onset sex offending behaviors.

Hunter, Figueredo, Becker, and Malamuth (2007) were interested in determining the role of empathy in adolescent delinquency and sex offending behaviors. Participants included 184 youth recruited from public and private institutional treatment programs for juvenile sex offenders across the U.S. Sites included both correctional and non-correctional, mental health-oriented residential facilities. All male youth at each facility between the ages of 12 and 18 with a history of sexual offending were invited to participate. Sixty six percent of the overall sample (n = 182) was Caucasian, 24% African-American, 7.5% Hispanic, 1.5% Native American, and 1% other or unknown.

A social history survey developed by the authors and completed by the participants was used to assess exposure to violence against women, childhood maltreatment, exposure to antisocial males, parental attachment, non-sexual delinquent behavior, and paternal investment/positive fathering. Hostile masculinity was measured using the *Hostility Toward Women Scale* (HTWS; Check, 1985), *Adversarial Sexual Beliefs Scale* (ASB; Burt, 1980), *Burt Rape Myths Acceptance Scale* (BRMAS; Burt, 1980), and *Acceptance of Interpersonal Violence Scale* (AIV; Burt, 1980). Egotistical/Antagonistic masculinity was measured using the *Mating Effort Scale* (MES; Rowe, Vazsonyi, & Figueredo, 1997), and *Negative/Positive Masculinity/Femininity Scale* (NPMF; Spence, Helmreich, & Holahan, 1979). Psychosocial deficits were measured using the *Youth Self-Report* (YSR; Achenbach, 1994) scales: Anxious/Depressed, Social Problems, Withdrawn, and the *Social Self-Esteem Inventory* (SSE; Lawson, Marshall, & McGrath, 1997), Emotional empathy was measure with the Empathic Concerns scale of the *Interpersonal Reactivity Index* (IRI; Davis, 1980).

The authors found that adolescent self-reported parental attachment and positive paternal experiences were positively associated with the development of emotional empathy. Exposure to male perpetrated violence against females was inversely associated to the development of emotional empathy. Adolescents exposed to violence against women and antisocial males were less likely to engage in non-sexual delinquency if they scored high on the emotional concerns scale. High levels of emotional empathy were found to attenuate the positive relationship between exposure to antisocial males and delinquency; low levels of emotional empathy were found to exacerbate the effect of exposure to antisocial males and engaging in delinquent acts.

Limitations to the study include that the study is cross sectional in design, thus associations between emotional empathy, developmental experience, and personality are correlational, and not indicative of causal relationships. Also, it is difficult to know the accuracy of adolescent retrospective data.

In conclusion, research supports psychopathy as an appropriate and stable construct that may be helpful in understanding adolescent problem behaviors. To summarize:

- There is evidence that measures of psychopathy are stable over time and can be helpful in predicting adolescent risk for engaging in antisocial behaviors (Lynam et al., 2008; O'Neill et al., 2003; Salekin, 2008).
- There is evidence that environmental factors may prevent the development of psychopathy traits in some adolescents (Dupéré et al., 2007; Lynam et al., 2008).
- Callous/unemotional traits and antisocial behaviors predict adolescent sexual aggression toward peers (Knight & Sims-Knight, 2004).
- Psychopathy was less predictive of adolescent sexual aggression toward children (Daversa & Knight, 2007).
- Early involvement in sexual offending may be a marker for psychopathy (McCrary et al., 2008).
- Adolescent sex offenders who have good parental attachment and who have had positive experiences with their fathers are more likely to develop empathy for others. The development of empathy appears to minimize

future antisocial behaviors in youth who have been exposed to violence against females and antisocial males (Hunter et al., 2007).

### **Chapter Summary**

- Adolescent behaviors have been conceptualized in terms of genetics and gene-environment interactions, typical and atypical neuropsychological development, attachment styles, and the influence of ecological factors (Blonigen et al., 2005; Caprara et al., 2007; Simpson et al., 2007; Yates, 2007).
- Genetic factors appear to play a significant role in predisposing adolescents to engage in antisocial behaviors and developing psychopathic traits (Arseneault et al., 2003; Baker et al., 2007; Blonigen et al., 2005; Caspi et al., 2002; Krueger et al., 2002; Larsson et al., 2006; Rowe & Osgood, 1984).
- There is evidence that gene and environment (i.e. childhood sexual abuse) interactions are associated with violent behavior in males (Beaver, 2008).
- Due to their neuropsychological development, adolescents tend to be less able to regulate impulsive responses to situations where high levels of stimulation and rewards are present (Somerville, Jones, & Casey, 2010)
- Atypical neuropsychological development can be associated with a history of trauma (Teicher et al., 2003; Yates, 2007) and may hinder the development of the ability to cope with stressors (De Bellis, 2005; Hankin, 2008; Harkness et al., 2006) and possibly contribute to offending behaviors (Baird et al., 2007).



- Attachment theory provides an apt model for describing development and interpersonal relationships within the context of early relationship behavior patterns with primary caregivers (Birnbaum et al., 2006; Lawson, 2008; Simpson et al., 2007).
- Attachment theory appears to have a strong influence on how adolescent sex offending behavior is conceptualized (Marshall & Barbaree, 1990; Miner, et al., 2010; Smallbone, 2006).
- Ecological Systems Theory (Bronfenbrenner, 1979) explains how peers, communities, social attitudes, and institutions may support or undermine successful adolescent growth (Caprara et al., 2007; Caspi et al., 2000; Guo et al., 2009).
- Parts of the ecological system (e. g. the influence of immediate family, inadequate peer relationships, size of home) have been found to be associated with adolescent sex offending (van Wijk et al., 2005; Miner et al., 1997; Netland & Miner, 2007).
- Adolescent sex offenders are similar to other non-sexual delinquents (Ronis & Bourdoin, 2007; van Wijk et al., 2005; Zakireh et al., 2008) and are also different from non-sexual delinquents (Lightfoot & Evans, 2000; Miner et al., 2010; Miner & Munns, 2005).
- Within the category of adolescent sex offenders there are several subtypes of sex offenders who engage in different behaviors, have different attitudes, and different family backgrounds (DiGiorgio-Miller, 2007; Hummel et al., 2000; Worling, 1995).

- Psychopathy is a construct applicable to adolescents and associated with significant and intractable behavior problems (Lynam et al., 2008; O'Neill et al., 2003; Salekin, 2008).
- There is growing evidence that psychopathy may help to explain adolescent sex offending behaviors in certain types of offenders (Knight & Sims-Knight, 2004; McCrory et al., 2008).

### Chapter Three: Methodology

The following section gives an overview of the current study and includes information about the participants and how they were recruited for this study. It also provides more specific information about dependent and independent variables.

#### Subjects

The participants for the current study were drawn from the Roots of Sexual Abuse Study (Roots; Miner et al. 2010). The Roots study consisted of adolescent males (ages 13-18) who had sexually abused children (committed crimes against victims who were at least 3 years younger than themselves and who were 12 years old or younger), adolescents who had sexually assaulted peers or adults (victims less than 3 years younger or older than themselves), adolescents who had sexually assaulted both children and peers or adults (i.e. crossover adolescent sex offenders who are defined as having a history of sexually assaultive behavior against both someone significantly younger than themselves and someone of similar age or older than themselves), and adolescents who have committed non-sexual delinquent behaviors. The current study included 229 adolescents: 78 child offenders, 49 peer/adult offenders, 26 crossover offenders, and 76 non-sex delinquents. Data collection occurred between June 6<sup>th</sup> 2005 and July 29<sup>th</sup> 2009. All participants were required to have intelligence quotients greater than 79 on the *Wechsler Intelligence Scale for Children* (WISC-IV; Wechsler, 2003). None of the participants presented signs of organic brain disorders or had a history of psychotic disorders. Participants racial representation was 52.9% Caucasian, 26.1% African American, 2.1% Hispanic, 6.0% Native American, 2.1% Asian, 8.7% Multiracial, and 1.5% Other.

All participants had participated in some type of remedial delinquency or sex offender treatment program in the state of Minnesota (MN). However, many of the MN programs took adolescents from other states. Treatment programs provided either residential or outpatient care to address histories of delinquency and/or sex offending; these programs included sex offender specific treatment programs, juvenile probation departments, and juvenile detention centers from urban and rural counties in MN (e.g., Hennepin, Arrowhead, Dodge, Fillmore, Olmsted counties). Participants were contacted by several methods. Some participants and/or their guardians were given information and consent forms for the study by therapists (inpatient and outpatient), probation officers, and/or therapeutic program coordinators who had agreed to collaborate with the study. Other participants and/or guardians were given information and consent forms for the study directly by members of the study's research staff.

The criterion for having a sex offence was having a documented history of unsolicited sexual physical contact with another. The criterion for being a delinquent was having a probation officer and a history of any type of offense greater than misdemeanor delinquent behavior. All participants had been in treatment programs for less than four months (some had recently re-offended at the time of data collection)

### **Variables**

The independent variables for the current study include four groups: child only sex offender, peer/adult sex offender, crossover sex offender, and non-sexual delinquent. The dependent variables for the current study are scores on five scales (i.e. Grandiosity, Impulsivity, Lack of Empathy, Interpersonally Exploitative, and Risk Taking) from the *Multidimensional Inventory of Development, Sex and Aggression*

(MIDSA; MIDSA Clinical Manual, 2007) and a measure of antisocial behavior from the subject's file review. All scale scores and distributions will be calculated using data from the adolescent males who participated in the study.

A computerized version the MIDSA survey was administered to participants. Not all of the 221 items from this survey were needed for the current study; only the 28 items associated with psychopathy were used in the current analysis. The survey was written at a 4th grade reading level and could be completed in approximately one hour. While participants completed the survey, research staff were available to answer questions from subjects. Features of the MIDSA to ensure data validity and integrity included validity checks, three lie scales, and a timer feature that alerted staff if participants answered questions from the survey too quickly.

### **Procedures**

Participants completed the survey and interview in a private room at their treatment center, in their home, at the University of Minnesota, or at a public facility (e.g. community center or library). The variety of locations was necessary because the outpatient adolescents in this study often came from chaotic and/or impoverished homes. Because of this factor, subjects often had difficulty getting transportation to the study if the meeting was away from their home or were unable to meet at home because they did not have a room with privacy. Also, because of the stigma associated with sexual offending and corresponding reluctance to acknowledge this behavior, it was necessary to be accommodating to encourage subject participation. Group status and history of antisocial behaviors (i.e. age of first alcohol use, age of first non-script drug use, problems at school, age of first victim offence, and age of first non-victim offence)

were determined through a review of institutional files (e.g. medical record, probation records, program charts, therapist casebook, etc.) using the *File Review Coding Guide*, a protocol for coding clinical case records based on the Sauk Centre Sex Offender Program File Review Guide (Miner, Siekert, & Ackland, 1997).

Informed consent was obtained from participants or their legal guardians by having them sign a consent form that explained the pros and cons of being involved the study. Participants who were 18 years old gave consent for their own participation. Participants between the ages of 13 and 17 had consent forms signed by a parent or legal guardian. Participants between the ages of 13 and 17 signed an assent form before participating in the study. Participants were paid \$25 for their participation. The study questionnaire, recruiting methods, data collection methods, and consent forms were all approved by the University of Minnesota's Institutional Review Board.

## **Measures**

**Psychopathy.** The MIDSA scales (consisting of 28 items) associated with psychopathy traits are:

*Grandiosity:* 4-item Likert-type scale ranging from 1 to 5, where 1 = definitely false and 5 = definitely true. High scores indicate high levels of grandiosity (exaggerated sense of self-worth). To test the reliability of each scale Cronbach's alpha was calculated for each scale using results from another dataset of 307 adolescent males who had participated in a different research study (MIDSA Clinic Manual, 2007, p. 5). The internal consistency was  $\alpha = .64$ .

*Impulsivity*: 9-item Likert-type scale ranging from 1 to 5, where 1 = definitely false and 5 = definitely true. High scores indicated high levels of impulsivity and irresponsible behavior. The internal consistency was  $\alpha = .82$ .

*Lack of Empathy*: 6-item Likert-type scale, ranging from 1 to 5, where 1 = definitely false and 5 = definitely true. High scores indicate a lack of empathy and shallow affect. The internal consistency was  $\alpha = .73$ .

*Interpersonally Exploitative*: 5-item Likert-type scale ranging from 1 to 5, where 1 = definitely false and 5 = definitely true. High scores indicated high levels of manipulating others for personal gain. The internal consistency was  $\alpha = .72$ .

*Risk Taking*: 4-item Likert-type scale, ranging from 1 to 5, where 1 = definitely false and 5 = definitely true. High scores indicated a high need for stimulation. The internal consistency was  $\alpha = .67$ .

The five scales used in the analysis were developed from items of the MIDSAs (Knight, 2004), which is a revised version of the *Multidimensional Assessment of Sex and Aggression* (MASA; Knight, Prentky, & Cerce, 1994). Knight, Prentky, and Cerce (1994) developed the MASA by using previous research to identify the domains (e.g. social competence, pervasive anger, sexualization, etc.) that are useful for assessing sexual aggression. Knight and Cerce (1999) reported that a series of four revisions had been made on the MASA. Both juvenile and adult sex offender subjects who were in residential treatment were used in their validation studies which included factor analyses and internal consistency analyses. A more recent version of this computer questionnaire was validated on both adolescent and adult sex offenders in residential treatment programs in four states (Knight, 2004). Most recently the validity of scales

have been established through the consistency of the pattern of correlations among these scales using various distinct groups, e.g. college students, community males, generic non sexual criminals, adult sex offenders in outpatient treatment, adult sex offenders who have been civilly committed as sexually dangerous, residential juvenile sex offenders (MIDSA, 2007). Each of the aforementioned groups came from multiple sites in the U.S. and Canada.

The items for the five MIDSA scales were rationally derived and developed using information from experienced clinicians. The dataset used for scale validation in this study sampled from different residential treatment facilities in the states of Maine, Massachusetts, Minnesota, and Virginia. All subjects had at least one assault that was sexually motivated and involved physical contact with the victim. The mean age of the sample was 15.2 years ( $SD = 0.24$ ). Participants in the sample were 56% Caucasian, 16% African-American, 6% Hispanic, 4% Asian, and 4% Native American. Twenty one percent of the sample had received mental health treatment at least one time previous to the study. Forty one percent had received treatment for sexual aggressive behavior more than once.

Romine and Miner (2007) reevaluated the scales of the MIDSA on a population of adolescents that consisted of both sex offenders and non-sex delinquents.

Participants differed from previous validation studies in that they were recruited from residential and community based treatment programs. Across all of the previously listed validation studies there were mean differences on some of the scales between group types (i.e. adults vs. adolescents, the Knight sample vs. the Romine and Miner sample, adolescent sex offenders vs. non-sex delinquents).



**Antisocial behavior.** To measure antisocial behavior, scores associated with age of first alcohol use, age of first illegal drug use, age of first victim offence, age of first non-victim offence, and a score associated with documented school problems were derived and added together. There is evidence that the earlier in life one engages in antisocial behaviors the more likely it is that these behaviors will persist and become an enduring behavioral pattern (Baker et al., 2007; Simpson et al., 2007; Vandiver, 2006; Vaughn, 2005). For this reason, more weight was given to younger documented incidences of antisocial behavior. Age scores were calculated by taking 18 (oldest possible age of a behavior) minus the earliest age of the documented behavior. Thus, higher scores were indicative of earlier involvement in antisocial behavior. The measure of antisocial behavior in this study included: 1. age of first alcohol use; 18 minus the earliest documented use of alcohol; if no history of alcohol use was identified, the participants' age at the time of the interview was subtracted from 18 as an indicator that no history of alcohol consumption had occurred before the interview date, 2. age of first illegal drug use; 18 minus the earliest documented non-script drug use was documented; if no history of drug use was identified, the participants' age at the time of the interview was subtracted from 18 as an indicator that no history of non-script drug consumption had occurred before the day of the interview, 3. age of first victim offence; 18 minus the earliest documented victim offence (sexual or non-sexual) was documented; if no history of victim offences were identified, the participants' age at the time of the interview was subtracted from 18 as an indicator that no history of victim offences had occurred before the day of the interview, 4. age of first victim offence; 18 minus the earliest documented non-victim offence was documented; if no

history of nonvictim offences were identified, the participants' age at the time of the interview was subtracted from 18 as an indicator that no history of non-victim offences had occurred before the day of the interview, and 5. history of school problems; history of school problems were documented as an accumulative score across three periods of time; problems in grammar school, junior high, and high school were coded as 0 = No problems/Unclear, 1 = Slight, 2 = Moderate, and 3 = Severe. Slight problems included a few instances of absences/truancies or minor conduct problems had been noted (e.g., subject had come to the attention of the teacher for some problem). Moderate problems were indicated if parents were called in, if subject was fighting with peers, or if there were many absences/truancies. A severe problems designation was given to participants with serious behavioral problems (e.g., out-of-control and beating/bullying others). An aggregate score of the five aforementioned derived scores determined the overall level of antisocial behavior. Information about antisocial behaviors was gathered from institutional file reviews by research assistants. Only data from the file review associated with antisocial behavior were used for this study. A confirmatory factor analysis gave evidence that these measures give rise to a single construct associated with antisocial behavior with the model providing a good fit:  $\chi^2 = 9.25$   $p = .099$ , CFI = .984, RMSEA = .049, NFI = .968, TLI = .953.

### **Analyses**

An analysis of variance (ANOVA) was used to compare the means of four independent groups. An ANOVA was conducted for each hypothesis to determine if there was a statistically significant difference between the four adolescent groups on the dependent variables; alpha was set at 0.05. A Tukey's HSD post hoc test ( $p < .01$ ) was

used to explore differences between groups with overall significant  $F$ 's. Descriptive statistics, such as means and standard deviations, were also provided for each of the variables.

Recently there has been much debate about the latent factor structure of psychopathy (Hare & Neumann, 2010; Skeem & Cooke, 2010). Specifically, this discussion has revolved around the relevance of antisocial behavior to the construct of psychopathy. This study examines five measures of psychopathy traits and one measure of antisocial behavior; for this reason the study lends itself to a post hoc confirmatory factor analysis (CFA) to determine the latent variable structure of the dependent measures with regard to the greater construct of psychopathy. Currently there is no published research that assesses the factor structure of psychopathy for adolescent sex offenders. Three contemporary CFA models previously assessed on adolescent populations were used to assess the fit of these models when applied to this population of both adolescent non-sex delinquents and sex offenders.

## Chapter Four: Results

This chapter describes the major research question of this study and describes the reasons for doing a post hoc analysis. The results are written below and presented as tables and diagrams. The total number of male adolescent subjects in each group of this study was: Group 1: 76 child sex offenders, Group 2: 49 peer/adult sex offenders, Group 3: 26 crossover (child and peer/adult) offenders, and Group 4: 78 delinquents (non-sex offenders).

### Research Question

The major research question of this study was to determine if there are differences in four groups of male adolescents in their levels of psychopathy traits and antisocial behaviors. The adolescent male groups include: child sex offenders, peer/adult sex offenders, crossover sex offenders, and non-sex delinquents. Psychopathy traits included: Grandiosity, the expression of exaggerated self-worth; Impulsivity, the tendency to act on sudden urges or desires and to engage in irresponsible behavior; Lack of Empathy, the inability to identify with and understand somebody else's feelings or difficulties; Interpersonally Exploitative, the tendency to manipulate others for personal gain; and Risk Taking, the need for high levels of stimulation. Antisocial behavior was defined as and measured with an aggregate score associated with age of first alcohol consumption, age of first non-script drug use, age of first victim offence, age of first non-victim offence, and amount of documented in-school problem behavior. The three sex offender groups were also compared each other and a group of delinquent male adolescents who were not sex offenders.

## Statistical Hypotheses

$H_{01}: \mu_{\text{child}} = \mu_{\text{peer/adult}} = \mu_{\text{crossover}} = \mu_{\text{non-sex delinquent}}$ ; there is no difference in mean level of grandiosity of the four adolescent groups (child sex offenders, peer/adult sex offenders, crossover sex offenders, and non-sex offender delinquent). Analysis of variance (ANOVA) showed a significant difference between the mean scores for grandiosity. These results are reported in Table 2; child ( $M = 6.03, SD = 3.41$ ), peer/adult ( $M = 6.43, SD = 3.31$ ), crossover ( $M = 5.08, SD = 3.51$ ), and non-sex offender delinquents ( $M = 8.31, SD = 3.81$ )  $F(3, 225) = 8.13, p = 0.000$ . Tukey's Honestly Significant Difference (HSD) post hoc analysis showed that the three sex offender groups did not vary significantly from one another on this measure and that the non-sex offending delinquents were more likely to score high on measures of grandiosity compared to the sex offending adolescents (see Table 1). Therefore, the null hypothesis that there is no difference in the mean level of grandiosity for the four adolescent groups was rejected.

$H_{02}: \mu_{\text{child}} = \mu_{\text{peer/adult}} = \mu_{\text{crossover}} = \mu_{\text{non-sex delinquent}}$ ; there is no difference in mean level of impulsivity for the four adolescent groups (non-sex offender delinquent, child sex offenders, peer/adult sex offenders, and crossover sex offenders). ANOVA showed no significant difference between the mean scores for impulsivity; these results are reported in Table 2. Child ( $M = 18.39, SD = 6.54$ ), peer/adult ( $M = 19.14, SD = 6.81$ ), crossover ( $M = 20.19, SD = 8.10$ ), and non-sex delinquents; non-sex delinquents ( $M = 17.60, SD = 6.41$ )  $F(3, 225) = 1.16, p = 0.326$ . Therefore, the null hypothesis was not rejected.

$H_{o3}: \mu_{\text{child}} = \mu_{\text{peer/adult}} = \mu_{\text{crossover}} = \mu_{\text{non-sex delinquent}}$ ; there is no difference in mean level of lack of empathy for the four adolescent groups (non-sex offender delinquent, child sex offenders, peer/adult sex offenders, and crossover sex offenders). ANOVA showed a significant difference between the mean scores for lack of empathy; these results are reported in Table 2. Child ( $M = 17.32, SD = 4.65$ ), peer/adult ( $M = 16.39, SD = 3.98$ ), crossover ( $M = 16.27, SD = 3.86$ ), and non-sex delinquents ( $M = 19.13, SD = 4.24$ )  $F(3, 225) = 5.55, p = 0.001$ . Tukey's HSD post hoc analysis showed that delinquents were more likely to score high on measures of lack of empathy compared to the three sex offender groups and that the adolescent sex offender groups did not vary significantly from one another on this measure (see Table 1). Therefore, the null hypothesis was rejected.

$H_{o4}: \mu_{\text{child}} = \mu_{\text{peer/adult}} = \mu_{\text{crossover}} = \mu_{\text{non-sex delinquent}}$ ; there is no difference in mean level of interpersonally exploitative for the four adolescent groups. ANOVA showed no significant difference between the mean scores for interpersonally exploitative; these results are reported in Table 2; child ( $M = 6.03, SD = 3.41$ ), peer/adult ( $M = 8.45, SD = 3.55$ ), crossover ( $M = 8.69, SD = 4.70$ ), and non-sex delinquents ( $M = 7.37, SD = 3.86$ )  $F(3, 225) = 1.13, p = 0.338$ . The null hypothesis was not rejected.

$H_{o5}: \mu_{\text{child}} = \mu_{\text{peer/adult}} = \mu_{\text{crossover}} = \mu_{\text{non-sex delinquent}}$ ; there is no difference in mean level of risk taking for the four adolescent groups (non sex offender delinquent, child sex offenders, peer/adult sex offenders, and crossover sex offenders). ANOVA showed no significant difference between the mean scores for risk taking; these results are reported in Table 2. Child ( $M = 8.04, SD = 3.74$ ), peer/adult ( $M = 7.92, SD = 4.23$ ), crossover

( $M = 8.73$ ,  $SD = 3.61$ ), and non-sex delinquents ( $M = 9.42$ ,  $SD = 4.23$ )  $F(3, 225) = 2.07$ ,  $p = 0.105$ . The null hypothesis was not rejected.

$H_{06}$ :  $\mu_{\text{child}} = \mu_{\text{peer/adult}} = \mu_{\text{crossover}} = \mu_{\text{non-sex delinquent}}$ ; there is no difference in mean level of antisocial behavior for the four adolescent groups. ANOVA showed a significant difference between the mean scores for antisocial behavior; these results are reported in Table 2. Child ( $M = 19.01$ ;  $SD = 9.42$ ), peer/child ( $M = 19.67$ ;  $SD = 8.10$ ), crossover ( $M = 22.77$ ;  $SD = 8.61$ ), and non-sex delinquents ( $M = 13.42$ ;  $SD = 7.51$ )  $F(3, 225) = 12.52$ ,  $p = 0.000$ . Tukey's HSD post hoc analysis showed that the three sex offender groups were more likely to score high on measures of antisocial behavior compared to non-sex offending delinquents and that the adolescent sex offender groups did not vary significantly from one another on antisocial behavior (see Table 1). The null hypothesis was rejected.

The results describe relative differences between the groups (i.e. child sex offenders, adult/peer sex offenders, crossover sex offenders, and non-sex delinquents) on measures of psychopathy traits and antisocial behavior. The non-sex delinquent group was found to be significantly higher on level of grandiosity and lack of empathy compared to the three sex offender groups, but no significant differences were found between the three sex offender groups on these measures. The three sex offender groups were found to be significantly higher on level of antisocial behavior than the non-sex delinquent group but no significant differences were found between the three sex offender groups on this measure. No statistically significant differences were found between the four groups of adolescents on measures of impulsivity, risk taking, or interpersonally exploitative.

Table 1

*Mean Score and Standard Deviation for Psychopathy Traits and Antisocial Behavior for Each Group*

Group Designation	Grandiosity M (SD)	Impulsivity M (SD)	Lack of Empathy M (SD)	Interpersonally Exploitative M (SD)	Risk Taking M (SD)	Antisocial M (SD)
Child (n=76)	6.03* (3.41)	18.39 (6.54)	17.32* (4.65)	7.82 (4.06)	8.04 (3.74)	19.01* (9.42)
Peer/Adult (n=49)	6.43* (3.31)	19.14 (6.80)	16.39* (3.98)	8.45 (3.55)	7.92 (4.23)	19.67* (8.10)
Crossover (n=26)	6.08* (3.51)	20.19 (8.10)	16.27* (3.86)	8.69 (4.70)	8.73 (3.61)	22.77* (8.61)
Delinquent (n=78)	8.31* (3.81)	17.60 (6.41)	19.13* (4.24)	7.37 (3.86)	9.42 (4.23)	13.42* (7.51)

\*The mean difference is significant between groups at  $p < .01$



Table 2

*Analysis of Variance for Psychopathy Traits and Antisocial Behavior for Adolescent Groups (Child, Peer/Adult, Crossover, and Non-sex Delinquent)*

Source	df	Mean Square	F	<i>p</i>
Between Subjects				
Grandiosity	3	102.34	8.23*	.00
Impulsivity	3	52.78	33.21	.33
Lack of Empathy	3	52.78	5.55*	.00
Interpersonally Exploitative	3	17.80	1.13	.34
Risk Taking	3	33.21	2.07	.11
Antisocial Behavior	3	805.56	12.51*	.00

\* $p < .01$

### **Confirmatory Factor Analysis**

One of the interests generated from the current study relates to the five measures of psychopathy traits and a measure of antisocial behavior with regard to the overall construct of psychopathy. Given the findings from this study, it appears that some of the psychopathy traits are more relevant than others at distinguishing differences between delinquents and sex offenders. However, many studies describe psychopathy as an integrated construct that encompasses all of the traits evaluated in current study (Hare, 1991; Lynam et al., 2008). The results of this study show less a consistent relationship among these variables. For this reason, it became of interest to determine if the measures and scales used in this study could be used to approximate any of the models used to represent the greater construct of psychopathy.

In conducting the current study, the researcher could not find any published research on the factor structure of psychopathy for a sample that included adolescent sex offenders. Therefore, it was deemed important to assess if this population of male adolescent sex offenders and non-sex delinquents have a similar structure for the construct of psychopathy as has been found in other groups of adolescents. Three Confirmatory Factor Analysis (CFA) models previously used to assess adolescent populations were used in the current study to assess the fit of these models for the population of this study which consists of both delinquents and adolescent sex offenders; previous CFA studies have involve adolescent corrections populations (Amato et al., 2008; Andershed et al., 2008; Neumann et al., 2006), conduct disordered and nondelinquents adolescents (Patrick et al., 2009) and adult male corrections populations (Benning et al., 2003; Forth et al., 2003). The two and four-factor models

include antisocial behavior measures while the three-factor model does not include a measure of antisocial behavior.

CFA multivariate statistical procedures test how well measured variables represent latent constructs, in this case the factors that underlie psychopathy, and are used to confirm or reject a measurement theory, in this case the measurement of psychopathy. A CFA model is constructed in advance and specifies the number of latent factors within a construct (e.g. psychopathy).

The two latent-factor model (Hare et al., 1990) has been described as consisting of features of interpersonal and affective characteristics such as grandiosity, lack of empathy, and manipulateness (Factor 1) and related to behavior and lifestyle such as impulsivity, a lack of goals, and irresponsibility (Factor 2). Benning, Patrick, Hicks, Blonigen, and Krueger (2003) found a similar two latent-factor structure in their measure of psychopathy where one factor was related to the emotional-interpersonal variables such as low anxiety, high dominance, and venturesomeness while the second factor consisted of the social-deviant aspects of psychopathy such as antisocial behavior, substance abuse, high negative emotionality, and low behavioral constraint. With regard to the three factor model, Andershed, Köhler, Eno Louden, and Hinrichs (2008) found a model consisting of three latent factors: Impulsive and Irresponsible Behavioral Style, Deficient Emotional Affective, and Arrogant Deceitful Interpersonal Style to identify a subgroup of highly problematic young people within a larger corrections population. Correspondingly, Patrick, Fowles, and Krueger (2009) developed a triarchic model of psychopathy for adolescents and youth encompassed by three distinct latent factors: disinhibition (low levels of impulse control); boldness (high

levels of social dominance, emotional resiliency, and venturesomeness); and meanness (a tendency to aggressively seek out resources without regard for others). The four factor model described by Neumann, Kosson, Forth, and Hare (2006) include the latent factors: Interpersonal (i.e. impression management, grandiosity, lying and conning), Affective (i.e. callous and shallow affect, lack of guilt and not accepting responsibility), Lifestyle (i.e. impulsive, need for stimulation and irresponsibility, parasitic and lacks goals), and 4) Antisocial (i.e. poor anger control and early problem behaviors, juvenile delinquency and criminal versatility).

In the current study psychopathy traits and antisocial behavior were used to measure psychopathy. The factors included measures of five psychopathy traits (i.e. grandiosity, impulsivity, interpersonally exploitative, risk taking, lack of empathy) and antisocial behavior, a factor some believe integral to the construct of psychopathy (Hare & Neumann, 2010), while others believe antisocial behavior to be a product of psychopathy (Skeem & Cooke, 2010). A CFA was conducted with the current study sample to assess which of the aforementioned factor structures best describes a data set that includes male adolescent sex offenders and non-sex offenders.

The CFA analyses are represented in Figures 1, 2, and 3. The circles and rectangles represent latent variables (factors proposed to underlie psychopathy) and manifest variables (measures of psychopathy traits and antisocial behaviors), respectively. The arrows from the latent variables to the observed variables are standardized factor loadings (regression weights). Standardized factor loadings are listed in the rectangles and can be interpreted as the correlation between the manifest (measured) variable and the latent variable. Squaring the standardized factor loading

results will give an indication of the portion of variance that the latent factors account for in the measures of psychopathy and antisocial behavior. Two-sided arrows represent a correlation between two latent factors. Table 3 gives information regarding the manifest variables (i.e. survey questions asked and file review information procured), the scales were created by the manifest variables, and the regression weights for each measure within the context of the two, three, and four-factor models.

The CFAs gave little evidence to support any of the models described above as an adequate fit for the data in this study. When interpreting CFA results, a good fit is indicated by a non-significant  $p$ -value, Comparative Fit Index (CFI)  $\geq .95$  (Hu & Bentler, 1999; Thompson, 2004), Root Mean Square Error of Approximation (RMSEA)  $\leq .06$  (Hu & Bentler, 1999; Thompson, 2004), Normed Fit Index (NFI)  $\geq .95$  (Thompson, 2004), and Tucker-Lewis Index (TLI)  $\geq .95$  (Hu & Bender, 1999). Results for the two-factor model (Benning, et al. 2003; Hare, et al. 1990) were: Chi-Square ( $\chi^2$ ) (496) = 1320.824,  $p = .000$ , CFI = .465, RMSEA = .069, NFI = .372, TLI = .395 (Figure 1). Results for the three-factor model (Andershed et al., 2008; Cooke & Michie, 2001) were:  $\chi^2$  (347) = 849.850,  $p = .000$ , CFI = .586, RMSEA = .064, NFI = .476, TLI = .516 (Figure 2). Results for the four-factor model (Amato et al., 2008; Neumann et al., 2006) were:  $\chi^2$  (489) = 1076.364,  $p = .000$ , CFI = .619, RMSEA = .059, NFI = .488, TLI = .563 (Figure 3).

Figure 1. Two-Factor Model for Psychopathy with Standardized Regression Weights and Correlation between Latent Factors.

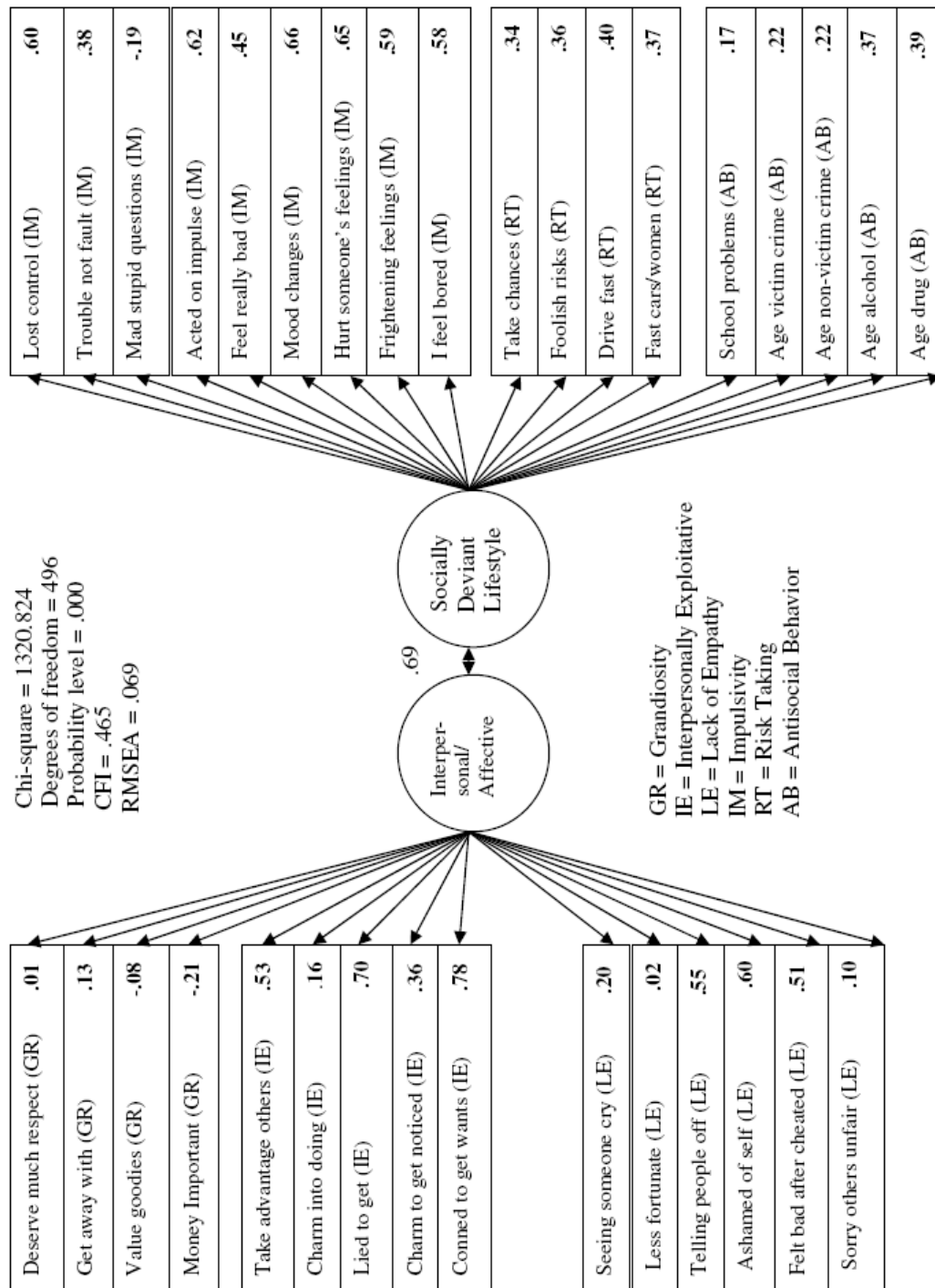
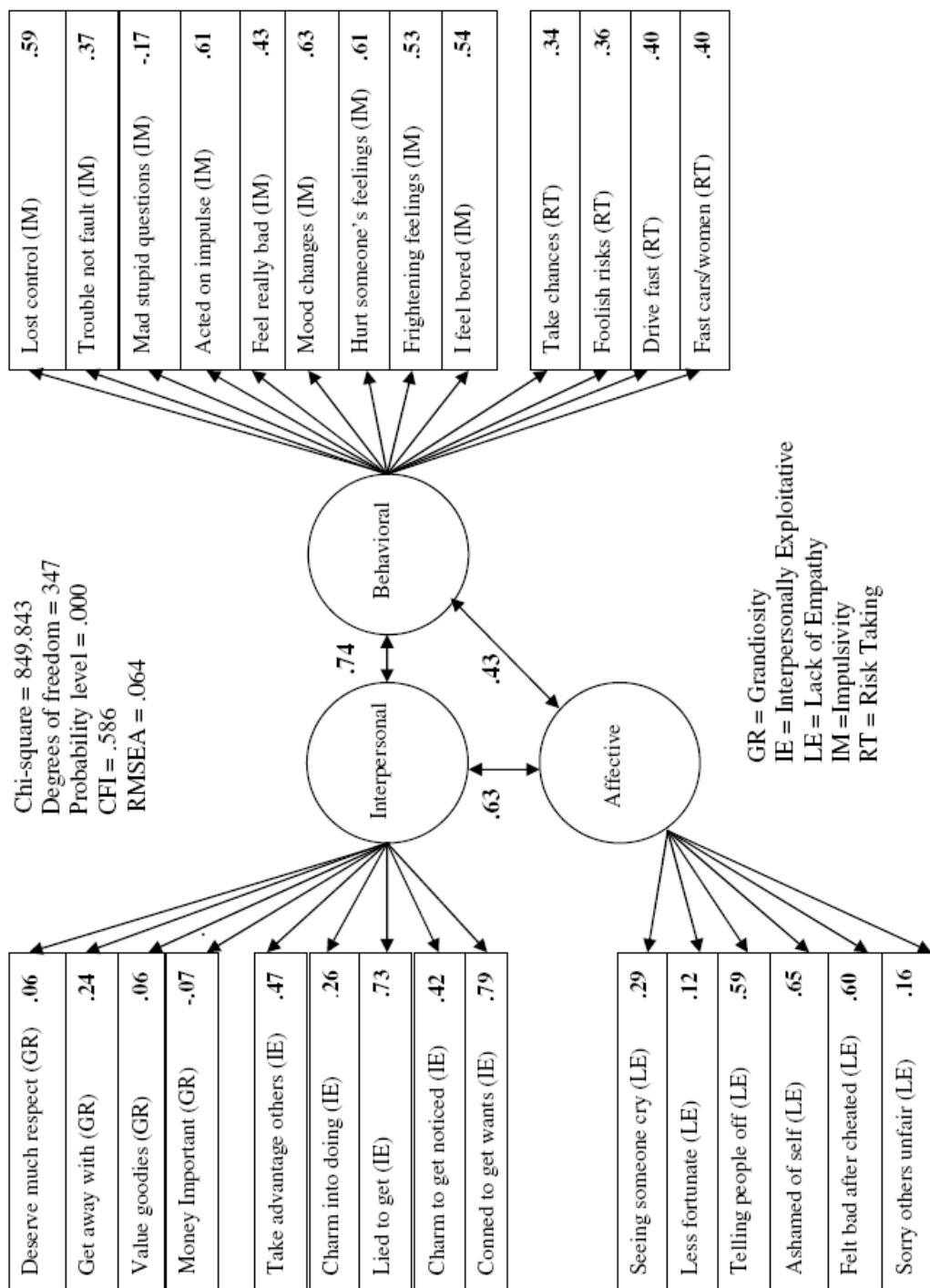


Figure 2. Three-Factor Model for Psychopathy with Standardized Regression Weights and Correlation between Latent Factors.



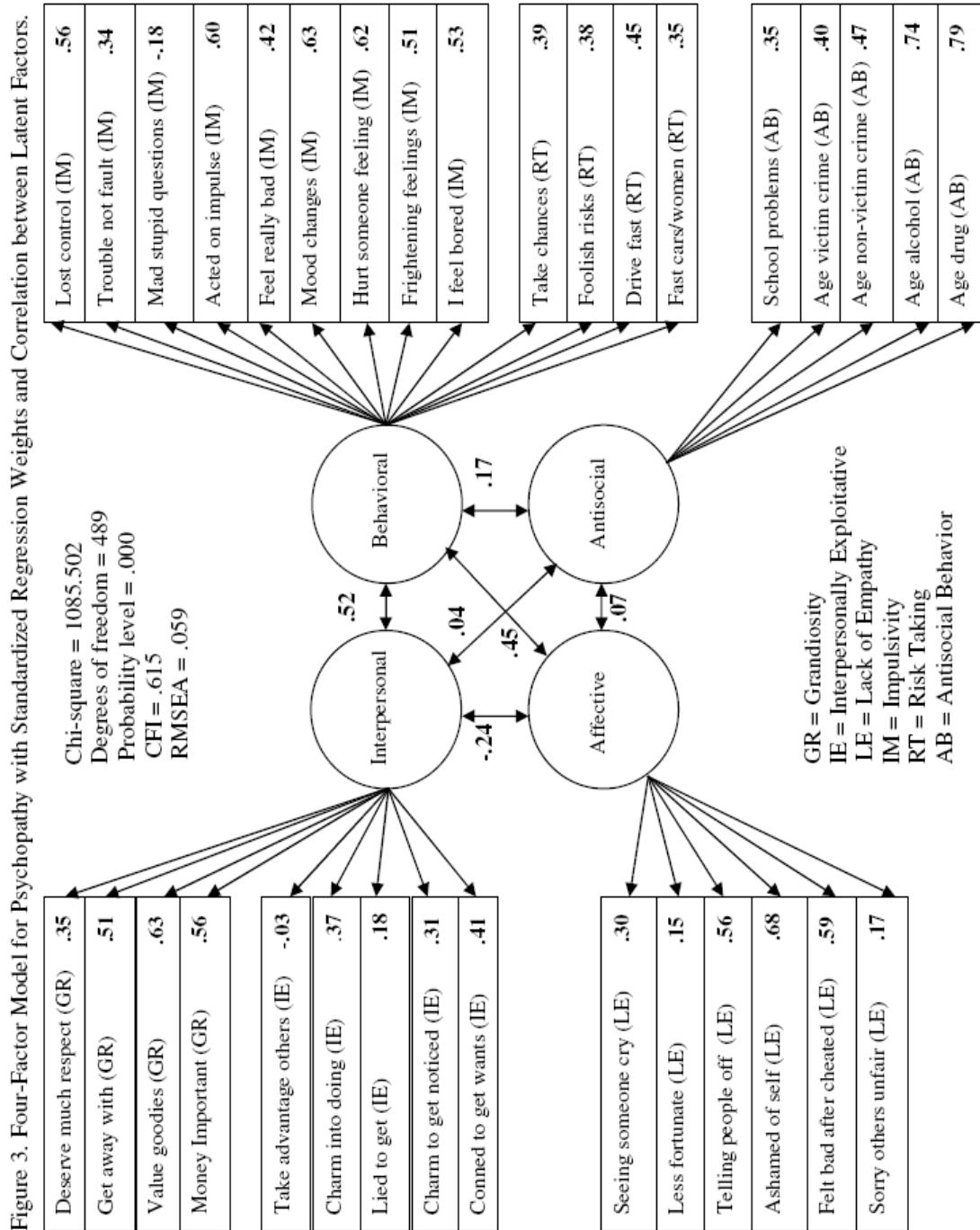


Figure 3. Four-Factor Model for Psychopathy with Standardized Regression Weights and Correlation between Latent Factors.



Table 3  
MIDSA Survey Questions, Associated Scales, and Regression Weights For Each CFA

MIDSA Survey Question (Abbreviated Version)	Scale	2-Factor	3-Factor	4-Factor
I deserve much more than I have gotten. (Deserve much respect)	Grandiosity	0.01	0.06	0.35
I do whatever I can get away with, and do not worry what is right. (Get away with)	Grandiosity	0.13	0.24	0.51
For me the highest value in life is getting all the goodies I can. (Value goodies)	Grandiosity	-0.08	0.06	0.63
My most important goal in life is to get as much money as I can. (Money important)	Grandiosity	-0.21	-0.07	0.56
There have been times when I took advantage of someone. (Taken advantage others)	Interpersonally Exploitative	0.53	0.47	-0.03
I can easily charm someone into doing almost anything for me. (Charm into doing)	Interpersonally Exploitative	0.16	0.26	0.37
I have lied to someone to get them to do what I want them to. (Lied to get)	Interpersonally Exploitative	0.7	0.73	0.18
I use my charm to get people to notice me. (Charm to get noticed)	Interpersonally Exploitative	0.36	0.42	0.31
I have conned someone to get what I wanted. (Conned to get wants)	Interpersonally Exploitative	0.78	0.79	0.41
Seeing someone who is crying makes me feel like crying. (Seeing someone cry)	LackofEmpathy	0.2	0.29	0.3
I feel sorry for people less fortunate than me. (Less fortunate)	LackofEmpathy	0.02	0.12	0.15
I have felt sorry after telling people off, even if they deserved it. (Telling people off)	LackofEmpathy	0.55	0.59	0.56
I have had thoughts that made me feel ashamed of myself. (Ashamed of self)	LackofEmpathy	0.6	0.65	0.68
I have felt very bad about myself after I cheated or did something wrong. (Felt bad after cheated)	LackofEmpathy	0.51	0.6	0.59
When I see someone being treated unfairly, I feel sorry for them. (Sorry others treated unfairly)	LackofEmpathy	0.1	0.16	0.17
I have lost control of myself, even though I did not want to. (Lost control)	Impulsivity	0.6	0.59	0.56
I have gotten in trouble for things that were not my fault. (Trouble not fault)	Impulsivity	0.38	0.37	0.34
I get mad at people who ask me stupid questions. (Mad stupid questions)	Impulsivity	-0.19	-0.17	-0.18
I have acted on impulse or without thinking. (Acted on impulse)	Impulsivity	0.62	0.61	0.6
I do things that make me feel really bad about myself. (Feel really bad)	Impulsivity	0.45	0.43	0.42
I have sudden changes in my moods. (Mood changes)	Impulsivity	0.66	0.63	0.63
I have hurt someone's feeling by saying something without thinking. (Hurt someone's feelings)	Impulsivity	0.65	0.61	0.62
I have had frightening feelings that I could not understand. (Frightening feelings)	Impulsivity	0.59	0.53	0.51
I feel bored. (I feel bored)	Impulsivity	0.58	0.54	0.53
I like to take chances and live dangerously. (Take chances)	RiskTaking	0.34	0.34	0.39
Some people tell me I take foolish risks. (Foolish risks)	RiskTaking	0.36	0.36	0.38
I like to drive fast, right on the edge of danger. (Drive fast)	RiskTaking	0.4	0.4	0.45
I like fast cars and fast women. (Fast cars/women)	RiskTaking	0.37	0.4	0.35
Total Problems: Grade, Middle, and High School (School problems)	Antisocial Behavior	0.17		0.35
Age of First Victim Crime (Age victim crime)	Antisocial Behavior	0.22		0.4
Age of First Non-Victim Crime (Age non-victim crime)	Antisocial Behavior	0.22		0.47
Age of First Alcohol Consumption (Age alcohol)	Antisocial Behavior	0.37		0.74
Age of First Non-Script Drug Use (Age drug)	Antisocial Behavior	0.39		0.79

## Summary of Findings

In summary, the results from this study found (1) the non-sex delinquent group to be significantly higher on their level of grandiosity and lack of empathy than the three sex offender groups, (2) no significant differences were found between the three sex offender groups on measures of grandiosity and lack of empathy, (3) the three sex offender groups were significantly higher on their level of antisocial behavior than the non-sex delinquent group, (4) no significant differences were found between the three sex offender groups on the measure of antisocial behavior, (5) no statistically significant differences were found between the four groups of adolescents on measures of impulsivity, risk taking, or interpersonally exploitative. Thus, the null hypotheses that there were no differences among the four adolescents groups on measures of grandiosity, lack of empathy, and antisocial behavior were rejected. The null hypotheses that there were no differences among the four adolescent groups on measures of impulsivity, risk taking and interpersonally exploitative were not rejected. Using measures from the current study, CFAs gave no evidence that the two, three, or four-factor models, previously described in the literature, provided an adequate level of fit for the latent variables that these models have previously use to depict psychopathy.

## **Chapter Five: Summary, Discussion, Recommendations, and Conclusions**

The final section of this paper will give an overview of the results and explain them within the context of current research literature. It will describe the limitations of this study as well what can be concluded from the results. Suggestions for future research and how the results can be applied to therapeutic interventions will also be discussed.

### **Summary**

The purpose of this study was to determine if there are significant differences between four groups of male adolescents (child sex offenders, adult/peer sex offenders, and crossover sex offenders, and non-sex delinquents) on measures of psychopathy traits (i.e. grandiosity, risk taking, impulsivity, interpersonally exploitative, and lack of empathy) and antisocial behavior. The participants for the study were drawn from the Roots of Sexual Abuse Study (Roots, Miner et al., 2010) and consisted of adolescent males (ages 13-18) who had (1) sexually abused children (committed crimes against victims who were at least 3 years younger than themselves and who were 12 years old or younger), (2) sexually assaulted peers or adults (victims less than 3 years younger or older than themselves), (3) sexually assaulted both children and peers or adults (i.e. crossover adolescent sex offenders), and (4) committed non-sex delinquent behaviors. The study included 229 adolescents: 78 child offenders, 49 peer/adult offenders, 26 crossover offenders, and 76 non-sex delinquents. All participants had participated in some type of remedial delinquency or sex offender treatment program in the state of Minnesota; many of the programs accepted adolescents from other states. Treatment

programs provided either residential or outpatient care to address histories of delinquency and/or sex offending. The criterion for having a sex offense was having a documented history of unsolicited sexual physical contact with another. The criterion for being a delinquent was having a probation officer and a history of any type of offense greater than misdemeanor delinquent behavior. All participants had been in treatment programs for less than four months. The scales associated with psychopathy traits were taken from the *Multidimensional Inventory of Development, Sex and Aggression* (MIDSA; MIDSA Clinical Manual, 2007) and antisocial behavior data were taken from institutional file reviews. The question of whether significant differences exist between the four groups of male adolescents on measures associated with psychopathy traits and antisocial behavior is relevant because some research shows evidence for a great deal of similarity between the characteristics of adolescent sex offenders and non-sex delinquents (Hunter et al., 2007; Johnson & Knight, 2000; Knight & Sims-Knight, 2003; van Wijk et al., 2005) while other research finds significant differences between these groups (Burton, 2008; Miner & Munns, 2005; Seto & Lalumière, 2006).

Variables associated with psychopathy were analyzed because there is evidence that psychopathy is a good predictor of future problem behavior among male adolescents (Kazdin, 1997; Lahey & Waldman, 2003; Salekin, 2006). Understanding the differences among adolescent child, peer/adult, and crossover sex offenders as well as non-sex delinquents holds the potential to support the development of more effective therapeutic and prevention interventions as well as to better inform criminal justice sentencing.

A post hoc analysis to assess the degree to which the independent variables acted to measure the latent variables (i.e. the two, three, or four factors described by most models of adolescent psychopathy) appeared appropriate for two reasons. First, it was an opportunity to determine if measures used in this study could be used collectively as one measure for psychopathy. Second, there is much debate concerning the construct of psychopathy and whether antisocial behavior should be a part of the construct of psychopathy (Hare & Neumann, 2010; Skeem & Cooke, 2010).

The results showed some differences between adolescent non-sex delinquents and three groups of adolescent sex offenders on three measures (antisocial behavior, grandiosity, and lack of empathy); however, no significant differences were found between any of the three adolescent sex offender groups on any of these three measures. The results differ from those found in a study of adult sex offenders that found crossover sex offenders to have higher levels of the construct psychopathy than adult and child sex offenders (Porter et al., 2000). The four adolescent groups did not differ on the other three measures of psychopathy traits (i.e. impulsivity, risk taking and interpersonally exploitative), suggesting similarities among the four groups on these traits.

The CFAs did not give evidence that the measures (i.e. grandiosity, impulsivity, lack of empathy, risk taking, interpersonally exploitative, and antisocial behavior) in this study appropriately captured those of the latent factor models (i.e. two, three, and four-factor models) for psychopathy. In other words, the two, three, and four-factor models of psychopathy did not provide an adequate fit for the data in this study. However, further structural equation modeling may help to better assess if some of the

measures in this study could be used to measure the latent variables associated with psychopathy.

## **Discussion**

This study contributes to the sex offender research by showing how adolescent non-sex delinquent offenders, child sex offenders, peer/adult sex offenders, and crossover sex offenders are both alike and different. The results compare adolescent type (i.e. child sex offender, peer/adult offender, crossover offender, and non-sex delinquent) on level of psychopathy traits (i.e. grandiosity, lack of empathy, risk taking, interpersonally exploitative, impulsivity) and antisocial behavior. Below it is discussed how the results of this study are related to and supported by other research.

**Grandiosity.** In the current study, all of the sex offender groups (n=153) were found to have significantly lower levels of grandiosity than the non-sex delinquent group (n=76). Miner and colleagues (2010) hypothesize that attachment style may be a distinguishing factor between adolescents who engaged in sex offending behaviors and those who engaged in non-sexual delinquent acts. Hazan and Shaver (1987) describe that attachment styles learned in childhood are replayed in adolescence and adulthood. The Miner et al. study described that adolescent sex offenders tend to feel more isolated from peers and struggle to relate to females on an interpersonal level; their results found non-sex delinquents to more commonly have a positive representational model of self (low anxiety) while adolescent sex offenders were more commonly categorized as having anxious attachment styles (high anxiety) which is indicative of a negative representational model of self. Following this line of reasoning, it seems plausible that individuals scoring higher on levels of grandiosity (non-sex delinquents) likely see

themselves as being worthy and capable of having a consenting peer sexual partner. Correspondingly, those lower on levels of grandiosity (adolescent sex offenders) may perceive limitations in both their interpersonal skills and inherent self-worth and consequently perceive limitations in their ability to develop an intimate relationship with a peer and thus contributing to sexually offend.

**Lack of empathy.** In this study, the three sex offender groups were found to have higher levels of empathy than the non-sex delinquent group. Considering the nature of sexual offending it may seem counterintuitive that sex offenders would score higher on a scale measuring empathy. However, there is research with adult male sex offenders indicating that empathy is not directly related to sexual offending (Tierney, 2001) and that it is difficult to distinguish adult male sex offenders from other males on the basis of empathic deficits (Langevin, Write, & Handy, 1988; Marshall & Maric, 1996). Fernandez and Marshall (2003) believe that adult sex offenders do not have empathy deficits but rather they suppress empathy toward their victims. Lindsey, Carlozzi, and Eells (2001) found adolescent sex offenders to have lower scores on empathy than non-sex delinquents; however, Monto, Zgourides, Wilson, and Harris (1994) did not find significant differences between these two groups. More recently, Hunter, Figueredo, Becker, and Malamuth (2007) found that a lack of empathy was associated with a tendency for adolescent sex offenders to engage in non-sexual delinquent acts. Smallbone, Wheaton, and Hourigan (2003) found similar results in adult sex offenders; their study found that adult sex offenders who had low levels of empathy were more likely to engage in non-sexual criminal offenses and in violent non-sexual offenses. Based on the aforementioned research, there is not a strong link

between the ability to empathize and sexual offending; however, more general criminal and delinquent behavior seems to be associated with decreased levels of empathy. The results of the current study appear consistent with the previous literature suggesting that low levels of empathy are a better predictor of general criminal behavior rather than sex offending behavior.

The idea that non-sex delinquents score higher on a measure of lack of empathy than do adolescent sex offenders is not surprising because grandiosity (which non-sex delinquents scored higher on in this study compared to sex offenders) implies a sense that one is superior to other people and entitled to special rights and privileges (Young & Brown, 1994). In adolescents, empathy appears to be associated with higher levels of pro-social behavior and lower levels of aggressive behavior (Laible, Carlso, & Roesch, 2004). Seto and Lalumière (2006) found that although male adolescent sex offenders often had significant histories of criminal and other conduct problems they generally showed lower levels of non-sex problem behaviors than did non-sex delinquents. Butler and Seto (2002) found that adolescent sex offenders were in general less likely to engage in future non-sexual delinquent acts and that sex offender only adolescents had higher levels of prosocial attitudes and were predicted to be less likely to engage in delinquent acts than sex plus non-sex offending delinquents. Consistent with the results of this study, there is evidence that adolescent sex offending may be a unique phenomenon that differs from other non-sexual offending behaviors in adolescents (Seto & Lalumière, 2006). Adolescent sex offending appears to be driven by fears that intimacy needs will not be met by peers (Marshall & Barbaree, 1990) as well as



influenced by deficits in the ability to regulate behaviors, such as impulsivity and risk taking, which are often associated with other forms of delinquency (Smallbone, 2006).

**Impulsivity, risk taking, and interpersonally exploitative.** Consistent with previous research, this study found that there were similarities between adolescent sex offenders and non-sex delinquents (Seto & Lalumière, 2005; van Wijk et al., 2005). Specifically, there were no significant differences in the psychopathy traits of impulsivity, risk taking, and interpersonally exploitative (all associated with deficits in forethought) between the four adolescent groups. The results are consistent with research describing the presence of significant externalizing behaviors in adolescents (Krueger et al., 2002). The various manifestations of externalizing behaviors commonly appear together and include antisocial behavior, substance abuse, and personality dimensions of aggressiveness and impulsivity (Krueger, Iacono, & McGue, 2001). Behavioral genetics research by Krueger et al. (2002) has indicated that this externalizing factor has a heritability percentage of approximately 81% indicating that these behaviors are biologically based. Hicks et al. (2007) indicate that patterns of externalizing behaviors in males tend to be much more influenced by genetic predisposition than when these behaviors are seen in females. Furthermore, Hall, Bernat, and Patrick (2007) have found that externalizing behaviors are neurobiologically based and associated with an inability to monitor impulse control and socialize effectively with peers; they also seem to be associated with low levels of the personality trait conscientiousness. Recent electroencephalography studies have found such externalizing behaviors to be associated with unique patterns of neural activity that appear to be highly heritable in nature (Carlson & Iacono, 2008; Hick et al., 2007).

There is evidence that environmental adversities (e.g. stability and quality of family relationships, financial instability, history of familial financial or mental health problems, etc.) interact with specific genes associated with externalizing behaviors to cause the phenotypic expression (i.e. manifestation) of such behaviors (Hicks et al., 2009). It is likely that these traits (impulsivity, risk taking and interpersonally exploitative) are associated with externalizing behaviors and the gene-environment interactions that appear to be related their development.

**Antisocial behavior.** There does not appear to be any research indicating that sexual offenders engage in significantly more antisocial behavior than non-sex delinquents. It is unlikely that the current study had a unique population of adolescent sex offenders; it is more likely that the results are an artifact of data collection, described as follows. The measures of antisocial behavior were taken from file reviews rather than from the *Multidimensional Inventory of Development, Sex and Aggression* (MIDSA; MIDSA Clinical Manual, 2007). Adolescent sex offenders more commonly had both juvenile corrections and mental health professionals involved in their case. Mental health professionals tended to document illegal activities that were conveyed within the context of a therapeutic session and have more interactions with parents and/or guardians who may have described antisocial behaviors in more depth. Juvenile corrections professionals tended to document only offenses that had drawn the attention of the juvenile justice systems. For these reasons, it is quite likely that the number of offenses committed by non-sex delinquents were under reported in this study.

**Confirmatory factor analysis.** None of the three CFAs conducted gave evidence of an adequate fit for the data in this study. However, standardized regression weights gave evidence that some of the psychopathy trait and antisocial measures may have contributed to a respectable portion of the variance accounted for by the latent variables (see Table 3). For example, in the four factor model, 14 of the 33 observed variables had 25% and 62% of their variance accounted for by latent variables; however, no latent variables accounted for a significant amount of variance for the observed variables interpersonal exploitative and risk taking. Similar results were found for the other models (two and three-factor). These results provide evidence that the latent variable may be associated with certain measures of psychopathy traits and antisocial behavior used in this study but not others. Thus, future model fitting would be necessary to determine which specific aspects (i.e. manifest and latent variables) of the current study might provide an adequate fit for the construct of psychopathy. The marginal internal consistency of two of the scales (i.e. Grandiosity  $\alpha = .64$  and Risk Taking  $\alpha = .67$ ) provide evidence that items in this survey may not reliably measure the proposed psychopathy traits in this population of adolescents. Thus, it is possible that making changes to these scales would support better model fitting.

Previous confirmatory factor analyses of psychopathy measures have involved measures such as the *Psychopathy Checklist—Revised* (PCL—YV; Neumann, Kosson, Forth, & Hare, 2006), *Childhood Psychopathy Scale* (CPS; Lynam, 1997), and *Multidimensional Personality Questionnaire* (MPQ—BF; Patrick, Curtin, & Tellegen, 2002) but not the *Multidimensional Inventory of Development, Sex, and Aggression*

(MIDSA; MIDSA Clinical Manual, 2007) that was used in this study. Although the observed measures in this study appeared to approximate those of other psychopathy measures further structural equation modeling is necessary to determine which MIDSA and antisocial measures in aggregate best contribute to a measure of psychopathy. Future analyses to determine the factor structure for the MIDSA measures of psychopathy and measures of antisocial behavior may first require an exploratory factor analysis which may reduce the measures to a smaller set of variables and give an understanding of the underlining structure of psychopathy. Thus, future structural equation modeling will be required to determine if the MIDSA can be used to measure psychopathy in adolescents and if a measure of antisocial behavior contributes to a model of psychopathy in an adolescent population that includes sex offenders. Knight and Knight-Sims (2005) have used similar MIDSA survey items to account for aspects of psychopathy, specifically callous/unemotional attitude and behavior. However, their structural equation modeling, which was done in an attempt to predict sexual coercion by adolescent males against females, did not include measures of empathy and viewed antisocial behavior as separate from measures of callous/unemotional behavior.

### **Recommendations**

Future research would benefit from comparing psychopathy traits in adolescent sex offenders and non-sex delinquents with a control group (i.e. adolescents males with no significant mental health or offending history) as well as groups of adolescents with mental health concerns but no significant history of victim offenses. While there is a body of research (e.g. Miner et al., 2010, Seto & Lalumière, 2005; van Wijk et al., 2005) comparing non-sex offending delinquents with adolescent sex offenders it is less

clear how these groups differ from teenagers without major concerns or problems.

Similarly, it is unclear to what degree non-sex delinquents and adolescent sex offenders may have mental health problems that contribute to acts of aggression toward others.

This study provides evidence that there may be subtle differences between male adolescent non-sex delinquents and adolescent sex offenders. Specifically, adolescent sex offenders, who in this study were found to be more empathic and less grandiose than non-sex delinquents, appear to be more focused on interpersonal relationships than other delinquents. Future treatment and prevention programs should take into account the subtle differences between delinquents and adolescent sex offenders. Specifically, professionals working with this population should acknowledge how delinquents appear to be more grandiose and lacking in empathy. Based on these results, it appears that sex offenders (because of their tendency to be more interpersonally connected and empathic) may respond well and more quickly to interventions that emphasize developing strong therapeutic relationships with mental health professionals as a catalyst for change. Delinquents may respond better to interventions that emphasize why behavioral change is in their best interest. Both groups will likely respond well to interventions that emphasize forethought and a minimization of impulsive behaviors. All groups represented will likely require intensive multi-systemic therapeutic interventions (e. g. intensive family- and homebased treatment that addresses multiple determinants of serious antisocial behaviors) for lasting behavioral change (Borduin, Schaeffer, & Heiblum, 2009).

## **Limitations**

Limitations of this study include that some of the scales measuring psychopathy traits may lack reliability and validity. Specifically, the Grandiosity  $\alpha = .64$  and Risk Taking  $\alpha = .67$  are below the commonly accepted cut off for the social sciences of an alpha of .70 (Miller, 1995). For these measures, the standard error of measurement will be well over half a standard deviation. Another limitation of this study is that the cross-sectional design shows how variables relate to each other at one period in time. None of the results provide evidence for the etiology of sexual offending. Participation was voluntary, creating the potential for sample bias. It is possible that volunteers create a bias that is not captured in the measures. However, because the adolescent samples were recruited in the same way, i.e., from inpatient and outpatient treatment programs and juvenile probation and detention centers, it is unlikely that the differences found among the groups were related to volunteer bias. Differences between these groups (i.e. adolescent child, peer/adult, crossover, and non-sex delinquents) on these measures (psychopathy and antisocial behavior) are relative to one another; it is unclear how these groups would compare with other groups of adolescent males such as a control group with no history of sexual offending or delinquency or groups of males with a history of mental health diagnoses associated with impulsivity and externalizing behaviors (e.g. chemical dependency and attention deficit/hyperactive disorder).

## **Conclusions**

The results of this study give evidence that there are differences between adolescent sex offenders and non-sex male delinquents on measures of grandiosity and lack of empathy. These differences give some insight into how these groups may

perceive the world. Non-sex male adolescent delinquents appear to have developed a more exaggerated sense of self-worth and may be more impaired in their ability to empathize with others when compared to sex offenders. These results give evidence to inform future research related to appropriate interventions for male adolescent sex offenders and non-sexual delinquents as well as help to further elucidate the etiology of psychological factors that may contribute to sexual offending behaviors.

No differences were found between the three male adolescent sex offender types (i.e. child, peer/adult, and crossover). It is possible that the similarities are limited to the traits measured specifically in this study. Many behaviors associated with psychopathy, such as impulsivity, parasitic lifestyle, and irresponsibility, are age appropriate in nature (Eden, Skeem, Cruise, & Cauffman, 2001; Seagrave & Grisso, 2002; Skeem & Cauffman, 2003). Longitudinal studies following the consistency of these traits would better indicate if these traits are adolescent limited or life-course persistent in specific types of adolescent sex offenders. Longitudinal studies would also give evidence regarding whether or not these traits are associated with future problems.

Although the results in this study do not show that the measures used appropriately fit any of the main models used to conceptualize psychopathy, it is still possible that the measures of psychopathy traits and antisocial behavior can be used to effectively assess for psychopathy. Many of the regression weights gave evidence that certain measures were strongly associated with the proposed latent variables in each of the models. It is possible that many of the observed variables (i.e. measures of psychopathy traits and antisocial behavior) could effectively measure the latent variables of psychopathy (i.e. factors associated with each model) if the measures that

were most strongly associated with the variables of psychopathy were retained and those least strongly associated with it were removed. Model testing of the MIDSA would benefit from an exploratory factor analysis as well comparing the results of these measures with other measures of psychopathy (i.e. *Psychopathy Personality Inventory; Psychopathy Checklist: Screening Version; Child Psychopathy Scale*).

Considering the similarities and differences that previous research has found between adolescent sex offenders and non-sex delinquents, the results of this study are not surprising. It is likely that future research on adolescent sex offenders will continue to find subtle differences between sex offenders and non-sex offending delinquents. It is hoped that these nuanced understandings will better inform prevention and therapeutic interventions, and allow for the best allocation of resources for minimizing sexual and non-sexual acts of aggression among adolescent males.



## Reference

- Achenbach, T. M. (1994). Child behavior checklist and related instruments. In M. E. Maruish (Ed.), *The use of psychological testing for treatment planning and outcome assessment* (pp. 517–549). Hillsdale, NJ, USA: Lawrence Erlbaum Associates, Inc.
- Achenbach, T. M. (1991). *Manual for the child behavior checklist/4-18 and 1991 profile*. Burlington, VT: University of Vermont Department of Psychiatry.
- Achenbach, T. M., & Edelbrock, C., 1987. In: *Manual for the Youth Self-Report and Profile*, University of Vermont Department of Psychiatry, Burlington, VT.
- Allen, R. A., & J. M. (1982). The effects of child maltreatment on language development. *Child Abuse & Neglect*, 6(3) 299 -305.
- American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision, (2000). Washington, DC, American Psychiatric Association, pp. 645-650.
- American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, (1994). Washington, DC, American Psychiatric Association.
- Amato, J. M., & Cornell, D. G. (2008). Adolescent psychopathy: Factor structure and correspondence with the Millon Adolescent Clinical Inventory. *Criminal Justice and Behavior*, 35, 294. doi:10.1177/0093854807311334
- Andershed, H., Köhler, D., Eno Louden, J., & Hinrichs, G. (2008). Does the three-factor model of psychopathy identify a problematic subgroup of young

offenders? *International Journal of Law and Psychiatry*, 31, 189-198. doi:

10.1016/j.ijlp.2008.04.003

Anderson, S. L., Tomada, A. Vincow, E. S., Valente, E., Polcari, A., & Teicher, M. H.

(2008). Preliminary evidence for sensitive periods in the effect of childhood sexual abuse on regional brain development. *The Journal of Neuropsychiatry and Clinical Neurosciences*, 20, 292–301.

doi:10.1176/appi.neuropsych.20.3.292

Archibald, F. S., Bartholomew, K. & Marx, R. (1995). Loneliness in early adolescence:

A cognitive discrepancy model of loneliness. *Personality and Social Psychology Bulletin*, 21, 296-301.

Arrigo, B. A., & Shipley, S. (2001). The confusion over psychopathy (I): Historical

considerations. *International Journal of Offender Therapy and Comparative Criminology*, 45, 325. doi: 10.1177/0306624X01453005

Arseneault, L., Moffitt, T. E., Caspi, A., Taylor, A., Rijdsdijk, F. V., Jaffee, S. R., ...

Measelle, J. R. (2003). Strong genetic effects on cross-situational antisocial behaviour among 5-year-old children according to mothers, teachers, examiner-observers, and twins' self-reports. *Journal of Child Psychology and Psychiatry*, 44, 832-848. doi:10.1111/1469-7610.00168

Baird, A. D., Wilson, S. J., Bladin, P. F., Saling, M. M., & Reutens, D. C. (2007).

Neurological control of human sexual behaviour: insights from lesion studies. *Journal of Neurology, Neurosurgery, & Psychiatry*, 78, 1042-1049.

doi:10.1136/jnnp.2006.107193

- Baker, A. J. L., Tabacoff, R., Tornusciolo, G., & Eisenstadt, M. (2003). Family secrecy: a comparative study of juvenile sex offenders and youth with conduct disorders. *Family Process, 42*, 105-116. doi:10.1111/j.1545-5300.2003.00105.x
- Barbaree, H. E., & Marshall, W. L. (2008). An introduction to the juvenile sex offender. *The Juvenile Sex Offender*, The Guilford Press, New York.
- Beaver, K. M. (2008). The interaction between genetic risk and childhood sexual abuse in the prediction of adolescent violent behavior. *Sexual Abuse: A Journal of Research and Treatment, 20*, 426-443. doi: 10.1177/1079063208325204
- Beck, A. T., & Steer, R. A., (1987). In: *Beck Depression Inventory Manual*, The Psychological Corporation, San Antonio, TX.
- Becker, T. E., Billings, R. S., Eveleth, D. M., & Gilbert, N. W. (1997). Validity of scores on three attachment style scales: exploratory and confirmatory evidence. *Educational and Psychological Measurement, 57*, 477-493. doi: 10.1177/0013164497057003009
- Beech, A. R., & Mitchell, I. J. (2004). A neurobiological perspective on attachment problems in sexual offenders and the role of selective re-uptake inhibitors in the treatment of such problems. *Clinical Psychology Review 25*, 153-182. doi:10.1016/j.cpr.2004.10.002
- Benner, A. D., Graham, S., & Mistry, R. S. (2008). Discerning direct and mediated effects of ecological structures and processes on adolescents' educational outcomes. *Developmental Psychology, 44*, 840-854. doi:10.1037/0012-1649.44.3.840

- Benning, S., Patrick, C., Hicks, B., Blonigen, D., & Krueger, R. (2003). Factor structure of the psychopathic personality inventory: Validity and implications for clinical assessment. *Psychological Assessment, 15*, 340-350. doi:10.1037/1040-3590.15.3.340
- Berger, A. M., Knutson, J. F., Mehm, J. G. and Perkins, K. A., 1988. The self-report of punitive childhood experiences of young adults and adolescents. *Child Abuse & Neglect, 12*, 251–262. doi:10.1016/0145-2134(88)90033-6
- Berk, L. E. (2007). *Development through the lifespan*. Boston, MA: Pearson Education.
- Biringen, Z., Robinson, J., & Emde, R. N. (1998). *The emotional availability scales* (3rd ed.) www.emotionalavailability.com
- Birnbaum, G. E., Reis, H. T., Mikulincer, M., Gillath, O., & Orpaz, A. (2006). When is sex more than just sex: attachment orientations, sexual experience, and relationship quality. *Journal of Personality and Social Psychology, 91*, 929-943. doi: 10.1037/0022-3514.91.5.929
- Blishen, B. R., & Carroll, W. K., (1978). Sex differences in a socioeconomic index for occupations in Canada. *Canadian Review of Sociology and Anthropology, 15*, 352–371. doi: 10.1111/j.1755-618X.1978.tb00678.x
- Blonigen, D. M., Hicks, B. M., Krueger, R. F., Patrick, C. J., & Iacono, W. G. (2005). Psychopathic personality traits: heritability and genetic overlap with internalizing and externalizing psychopathology. *Psychological Medicine, 35*, 637–648. doi: 10.1017/S0033291704004180
- Borduin, C. M., Blaske, D. M., Cone, L., Mann, B. J., & Hazelrigg, M. D. (1989). *Development and validation of a measure of adolescent peer relations: The*

*Missouri Peer Relations Inventory*. Unpublished manuscript, Department of Psychological Sciences, University of Missouri-Columbia.

- Borduin, C. M., Mann, B. J., Cone, L. T., Henggeler, S. W., Fucci, B. R., Blaske, D. M., & Williams, R. A. (1995). Multisystemic treatment of serious juvenile offenders: Long-term prevention of criminality and violence. *Journal of Consulting and Clinical Psychology, 63*, 569–578.
- Bourke, M. L., & Donohue, B. (1996). Assessment and treatment of juvenile sex offenders: An empirical review. *Journal of Child Sexual Abuse, 1*, 47-70. doi: 10.1300/J070v05n01\_03
- Borduin, C. M., Schaeffer, C. M., & Heiblum, N. (2009). A randomized clinical trial of multisystemic therapy with juvenile sexual offenders: Effects on youth social ecology and criminal activity. *Journal of Consulting and Clinical Psychology, 77*, 26-37. doi:10.1037/a0013035
- Bowlby, J. (1988). *A secure base*. New York: Basic Books.
- Bronfenbrenner, U. (1979). *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge, MA: Harvard University Press.
- Brown, S. L., & Forth, A. E. (1997). Psychopathy and sexual assault: Static risk factors, emotional precursors, and rapist subtypes. *Journal of Consulting and Clinical Psychology, 65*, 848-857.
- Burn, M. F., & Brown, S. (2006). A review of the cognitive distortions in child sex offenders: An examination of the motivations and mechanisms that underlie the justification for abuse. *Aggression and Violent Behavior, 11*, 225-236. doi:10.1016/j.avb.2005.08.002

- Burt, M. R. (1980). Cultural myths and supports for rape. *Journal of Personality & Social Psychology*, 38, 217–230. doi:10.1037/0022-3514.38.2.217
- Burt, S. A., McGue M., Krueger R. F., & Iacono, W. G. (2005). How are parent–child conflict and childhood externalizing symptoms related over time? Results from a genetically-informative cross-lagged study. *Development and Psychopathology*, 17, 145–165. doi: 10.1017/S095457940505008X
- Burton, D. L. (2008). An exploratory evaluation of the contribution of personality and childhood sexual victimization to the development of sexually abusive behavior. *Sexual Abuse: A Journal of Research and Treatment*, 20, 102. doi: 10.1177/1079063208315352
- Buss, A. H. and Durkee, A. (1957). An inventory for assessing different kinds of hostility. *Journal of Clinical Psychology*, 21, 343–349. doi:10.1037/h0046900
- Butcher, J. N., Williams, C. L., Graham, J. R., Archer, R. P., Tellegen, A., Ben-Porath, Y. S., & Kaemmer, B. (1992). *Minnesota multiphasic personality inventory - adolescent*<sup>TM</sup>. Minneapolis, MN: University of Minnesota Press.
- Butler, S. M., & Seto, M. C. (2002). Distinguishing two types of adolescent sex offenders. *Journal of the American Academy of Child & Adolescent Psychiatry*, 41, 83. doi:10.1097/00004583-200201000-00015
- Button, T. M. M., Scourfield, J., Martin, N., Purcell, S., & McGuffin, P. (2005). Family dysfunction interacts with genes in the causation of antisocial symptoms. *Behavioral Genetics*, 35, 115-120. doi: 10.1007/s10519-004-0826-y
- Cadoret, R. J. (1982). Genotype–environment interaction in antisocial behaviour. *Psychological Medicine*, 12, 235-239. doi: 10.1017/S0033291700046559

- Caldwell, M. F. (2009). Study characteristics and recidivism base rates in juvenile sex offender recidivism. *International Journal of Offender Therapy and Comparative Criminology*, *54*, 197-212. doi: 10.1177/0306624X08330016
- Caldwell, M. F. (2002). What we do not know about juvenile sexual reoffense risk. *Child Maltreatment*, *7*, 291-302. doi: 10.1177/107755902237260
- Carpenter, K. M. & Addis, M. E. (2000). Alexithymia, gender, and responses to depressive symptoms. *Sex Roles*, *43*, 629-644. doi: 10.1023/A:1007100523844
- Carrey, N. J., Butter, H. J., Persinger, M. A. & Bialik, R. J. (1995). Physiological and cognitive correlates of child abuse. *Journal of the American Academy of Child & Adolescent Psychiatry*, *34*, 1067-1076. doi:10.1097/00004583-199508000-00017
- Carlson, S. R. & Iacono, W. G. (2008). Deviant P300 amplitude development in males is associated with paternal externalizing psychopathology. *Journal of Abnormal Psychology*, *117*, 947-953. doi: 10.1037/a0013443
- Casey, B. J., Getz, S., & Galvan, A. (2008). The adolescent brain. *Developmental Review*, *28*, 62-77. doi: 10.1196/annals.1440.010
- Caspi, A., McClay, J., Moffitt, T. E., Mill, J., Marin, J., Craig, I. W., ... Poulton, R. (2002). Role of genotype in the cycle of violence in maltreated children. *Science*, *297*, 851-854. doi: 10.1126/science.1072290
- Caspi, A., Taylor, A., Moffitt, T. E., & Plomin, R. (2000). Neighborhood deprivation affects children's mental health: Environmental risks identified in a genetic design. *Psychological Science*, *11*, 338-342.

- Caprara, G. V., Dodge, K. A., Pastorelli, C., & Zelli, A. (2007). How marginal deviations sometimes grow into serious aggression. *Child Development Perspectives, 1*, 33-39. doi: 10.1111/j.1750-8606.2007.00007.x
- Cauffman, E. (2004). The adolescent brain: excuse versus explanation. *Annals of the New York Academy of Science, 1021*, 160-161. doi: 10.1196/annals.1308.020
- Chaffin, M. (2008). Our minds are made up--don't confuse us with the facts: Commentary on policies concerning children with sexual behavior problems and juvenile sex offenders. *Child Maltreatment, 13*, 110-121. doi: 10.1177/1077559508314510
- Check, J. V. (1985). The Hostility Toward Women Scale. *Dissertation Abstracts International, 45*(12-B, Pt1), 3993.
- Cicchetti, D., & Barnett, D. (1991) Attachment organization in maltreated preschoolers. *Development and Psychopathology, 3*, 397-411. doi: 10.1017/S0954579400007598
- Cleckley, H. (1988). *The Mask of Sanity*. Revised Edition. Mosby Medical Library.
- Coid, J., & Yang, M. (2008). The distribution of psychopathy among a household population: Categorical or dimensional? *Social Psychiatry and Psychiatric Epidemiology, 43*, 773-781. doi: 10.1007/s00127-008-0363-8
- Conklin, J. (2007). *Criminology*. Boston: Pearson Education, Inc.
- Cooke, D. J., & Michie, C. (2001). Refining the construct of psychopathy: Towards a hierarchical model. *Psychological Assessment, 13*, 171-188. doi: 10.1037//1040-3590.13.2.171



- Cooke, D. J., Michie, C., Hart, S. D., & Hare, R. D. (1999). Evaluating the screening version of the hare psychopathy checklist--revised (PCL: SV): An item response theory analysis. *Psychological Assessment, 11*, 3-13.
- Cooke, D. J., Michie, C., & Skeem, J. (2007). Understanding the structure of the psychopathy checklist-revised: An exploration of methodological confusion. *The British Journal of Psychiatry, 190*, 39-51. doi: 10.1192/bjp.190.5.s39
- Craissati, J., & Beech, A. (2006). The role of key developmental variables in identifying sex offenders likely to fail in the community: An enhanced risk prediction model. *Child Abuse & Neglect, 30*, 327-339.
- Crittenden, P. M. (1985). Maltreated infants: vulnerability and resilience. *Journal of child Psychology and Psychiatry, 26*, 85-96. doi: 10.1111/j.1469-7610.1985.tb01630.x
- Dahl, R. E. (2004). Adolescent development and the regulation of behavior and emotion. *Annals of the New York Academy of Science, 1021*, 294-295. doi: 10.1196/annals.1308.001
- Daleiden, E. L., Kaufman, K. L., Hilliker, D. R., & O'Neil, J. N. (1998). The sexual histories and fantasies of youthful males: A comparison of sexual offending, nonsexual offending and nonoffending groups. *Sexual Abuse: A journal of Research and Treatment, 10*, 195-209. doi: 10.1023/A:1021365804076
- Daversa, M. T., & Knight, R. A. (2007). A structural examination of the predictors of sexual coercion against children in adolescent sexual offenders. *Criminal Justice and Behavior, 34*, 1313-1333. doi: 10.1177/0093854807302411

- Davis, G. E., & Leitenberg, H. (1987). Adolescent sex offenders. *Psychological Bulletin*, *101*, 417-427. doi: 10.1037/0033-2909.101.3.417
- Davis, M. H. (1980). Individual differences in empathy: A multidimensional approach. *Dissertation Abstracts International*, *40(7B)*, 3480. doi: 10.1037/0022-3514.44.1.113
- Deater-Deckard, K. (2000). Parenting and child behavioral adjustment in early childhood: A quantitative genetic approach to studying family processes and child development. *Child Development*, *71*, 468–484. doi: 10.1111/1467-8624.00158
- Deater-Deckard, K., Ivy, L. & Petrill, S.A. (2006). Maternal warmth moderates the link between physical punishment and child externalizing problems: A parent - offspring behavior genetic analysis. *Parenting*, *6*, 59–78. doi: 10.1207/s15327922par0601\_3
- DeLisi, M., Beaver, K. M., Wright, J. P., & Vaughn, M. G. (2008). The etiology of criminal onset: The enduring salience of nature and nurture. *Journal of Criminal Justice*, *36*, 217-223. doi:10.1016/j.jcrimjus.2008.04.001
- De Bellis, M. D. (2001). Developmental traumatology: The psychobiological development of maltreated children and its implications for research, treatment, and policy. *Development and Psychopathology*, *13*, 539-564. doi: 10.1017/S0954579401003078
- De Bellis, M.D. (2005). The psychobiology of neglect. *Child Maltreatment*, *10*, 150-172. doi: 10.1177/1077559505275116

- De Bellis, M. D., Broussard, E. R., Herring, D. J., Wexler, S., Moritz, G. & Benitez, J. G. (2001). Psychiatric co-morbidity in caregivers and children involved in maltreatment: a pilot research study with policy implications, *Child Abuse & Neglect*, 25, 923-944. doi:10.1016/S0145-2134(01)00247-2
- Dhawan, S., & Marshall, W. L. (1996). Sexual abuse histories of sexual offenders. *Sexual Abuse: A Journal of Research and Treatment*, 8, 7-15. doi: 10.1007/BF02258012
- DiGiorgio-Miller, J. (2007). Emotional variables and deviant sexual fantasies in adolescent sex offenders. *Journal of Psychiatry and Law*, 35(2), 109-134.
- Dupéré, V., Lacourse, E., Williams, J. D., Vitaro, F., & Tremblay, R. E. (2007). Affiliation to youth gangs during adolescence: The interaction between childhood psychopathic tendencies and neighborhood disadvantage. *Journal of Abnormal Child Psychology*, 35, 1035-1045. doi: 10.1007/s10802-007-9153-0
- Edelstein, R. S., Alexander, K. W., Shaver, P. R., Schaap, J. M., Quas, J. A., Lovas, G. S., ... Goodman, G. S. (2004). Adult attachment style and parental responsiveness during a stressful event. *Attachment & Human Development*, 6, 31-52. doi: 10.1080/146167303100001659584
- Edens, J. F., Campbell, J. S., & Weir, J. M. (2007). Youth psychopathy and criminal recidivism: A meta-analysis of the psychopathy checklist measures. *Law and Human Behavior*, 31, 53-75. doi: 10.1007/s10979-006-9019-y
- Edens, J. F., Guy, L. S., & Fernandez, K. (2003). Psychopathic traits predict attitudes toward a juvenile capital murderer. *Behavioral Sciences and the Law*, 21, 807-828. doi: 10.1002/bsl.567

- 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 & the Law, 19*(1), 53-80.
- Elliott, M., Browne, K., & Kilcoyne, J. (1995). Child sexual abuse prevention: What offenders tell us. *Child Abuse and Neglect 19: 579-594.*
- Elliot, D., Wilson, W. J., Huizinga, D., Sampson, R. J., Elliott, A., & Rankin, B. (1996). The effects of neighborhood disadvantage on adolescent development. *Journal of Research in Crime and Delinquency, 33*, 389-426. doi: 10.1177/0022427896033004002
- Feeney, J. A. (1999). Adult romantic attachment and couple relationships. In J. Cassidy & P.R. Shaver (Eds.), *Handbook of attachment: theory, research, and clinical applications* (355-377). New York: Guilford Press.
- Fernandez, Y. M., & Marshall, W. L. (2003). Victim empathy, social self-esteem, and psychopathy in rapists. *Sexual Abuse: A Journal of Research & Treatment, 15*, 11–26. doi: 10.1023/A:1020611606754
- Finkelhor, D. (1984). *Child sexual abuse: New theory and research*, New York: Free Press.
- Finzi, R., Ram, A., Har-Even, D., Shnit, D., & Weizman, A. (2001). Attachment styles and aggression in physically abused and neglected children. *Journal of Youth and Adolescence, 30*, 769-786. doi: 10.1023/A:1012237813771
- Fite, P. J., Greening, L., Stoppelbein, L., & Fabiano, G. A. (2009). Confirmatory factor analysis of the antisocial process screening device with a clinical inpatient population. *Assessment, 16*, 103-114. doi: 10.1177/1073191108319893

- Fontaine, R. G., Yang, C., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2008). Testing an individual systems model of response evaluation and decision (RED) and antisocial behavior across adolescence. *Child Development, 79*, 462-475. doi: 10.1111/j.1467-8624.2007.01136.x
- Forth, A. E., Kosson, D. S., & Hare, R. D. (2003). *The Psychopathy Checklist: Youth Version*. Toronto, Ontario, Canada: Multi-Health Systems.
- Fraley, R. C., & Spieker, S. J. (2003). Are infant attachment patterns continuously or categorically distributed? A taxometric analysis of Strange Situation behavior. *Developmental Psychology, 39*, 387-404. doi: 10.1037/0012-1649.39.3.387
- France, K., & Hudson, S. (1993). The conduct disorders and the juvenile sex offenders. In H. E. Barbaree, W. L. Marshall & S. M. Hudson (Eds.), *The Juvenile Sex Offender* (pp. 225-234). New York: Guilford Press.
- 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. doi: 10.1023/A:1014600311758
- Frick, P. J., & Hare, R. D. (2001). *The Antisocial Process Screening Device*. Toronto, Ontario, Canada: Multi-Health Systems.
- Frick, P. J., Kimonis, M. S., 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. doi: 10.1002/bsl.568
- Frick, P. J., & Morris, A. S. (2004). Temperament and developmental pathways to conduct problems. *Journal of Clinical Child and Adolescent Psychology, 33*, 54-68. doi: 10.1207/S15374424JCCP3301\_6

- Fruyt, F. D., Bartels, M., Van Leewen, K. G., De Clercq, B., Decuyper, M., & Mervielde, I. (2006). Five types of personality continuity in childhood and adolescence. *Journal of Personality and Social Psychology*, *91*, 538-552. doi: 10.1037/0022-3514.91.3.538
- Funder, D. C. (2001). *The Personality Puzzle, 2<sup>nd</sup> Edition*, New York: W.W. Norton & Company, Inc.
- Ganiban, J., Saudino, K., Ulbricht, J., Neiderhiser, J., & Reiss, D. (2008). Stability and change in temperament during adolescence. *Journal of Personality and Social Psychology*, *95*, 222-236. doi:10.1037/0022-3514.95.1.222 |
- Gay, P. (1988). *Freud: A Life for Our Time*. New York: W. W. Norton & Company.
- Giedd, J. N., Blumenthal, J., Jeffries, N. O., Castellanos, F. X., Liu, H., Zijdenbos, A., ... Rapoport, J. L. (1999). Brain development during childhood and adolescence: A longitudinal MRI study. *Nature Neuroscience*, *2*, 861–863.
- Gilbertson, M. W., Shenton, M. E., Ciszewski, A., Kasai, K., Lasko, N.B., Orr, S.P., & Pitman, R.K. (2002). Smaller hippocampal volume predicts pathological vulnerability to psychological trauma. *Nature: Neuroscience*, *5*, 1242-1247. doi:10.1038/nn958
- Goldsmith, R. E., & Freyd, J. J. (2005). Awareness for emotional abuse. *Journal of Emotional Abuse*, *5*, 95–123. doi: 10.1300/J135v05n01\_04
- Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford, CA: Stanford University Press.

- Grabell, A. S., & Knight R. A. (2009). Examining Childhood Abuse Patterns and Sensitive Periods in Juvenile Sexual Offenders. *Sex Abuse: A Journal of Research and Treatment*, *21*, 208-222. doi: 10.1177/1079063209333133
- 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. doi: 10.1037/0022-006X.72.4.636
- Gretton, H. M., McBride, M. Hare, R. D., O'Shaughnessy, & Kumka, G. (2001). Psychopathy and recidivism in adolescent sex offenders. *Criminal Justice and Behavior*, *28*, 427-449. doi: 10.1177/009385480102800403
- Grossman, K. E., Grossman, K., Winter, M., & Zimmermann, P. (2002). Attachment relationships and appraisal of partnership: From early experience of sensitive support to latter relationship representation. In L. Pulkkinen & A. Caspi (Eds.), *Paths to successful development* (pp.73-105). Cambridge: university Press.
- Hall, J. R., Bernat, E. M., & Patrick, C. J. (2007). Externalizing psychopathology and the error-related negativity. *Psychological Science*, *18*, 326–333. doi: 10.1111/j.1467-9280.2007.01899.x
- Hamilton, C. E. (2000). Continuity and discontinuity of attachment from infancy through adolescence. *Child Development*, *71*, 690-694. doi: 10.1111/1467-8624.00177
- Hankin, B. J. (2008). Stability of cognitive vulnerabilities to depression: a short-term prospective multiwave study. *Journal of Abnormal Psychology*. *117*, 324-333. doi: 10.1037/0021-843X.117.2.324

- Hare, R. D. (1996). Psychopathy: A clinical construct whose time has come. *Criminal Justice and Behavior*, 23, 25-54. doi: 10.1177/0093854896023001004
- Hare, R. D. (1991). *The Self-Report Psychopathy Scale—II*. Unpublished test, University of British Columbia, Vancouver, British Columbia, Canada.
- Hare, R. D., Harpur, T. J., Hakistan, A. R., Forth, A. E., Hart, S. D., & Newman, J. P. (1990). The Revised Psychopathy Checklist: Reliability and factor structure. *Psychological Assessment*, 2, 338-341. doi: 10.1037/1040-3590.2.3.338
- Hare, R. D., Hart, S. D., & Harpur, T. J. (1991). Psychopathy and the DSM-IV criteria for antisocial personality disorder. *Journal of Abnormal Psychology*, 100, 391-398. doi: 10.1037/0021-843X.100.3.391
- Hare, R. D., & Neumann, C. S. (2010). A role of antisociality in a psychopathy construct: comment on Skeem and Cooke. *Psychological Assessment*, 22, 446-454. doi:10.1037/a0013635
- Harkness, K. L., Bruce, A. E., & Lumley, M. E. (2006). The role of childhood abuse and neglect in the sensitization of stressful life events in adolescent depression. *Journal of Abnormal Psychology*, 115, 730-741. doi: 10.1037/0021-843X.115.4.730
- Harpur, T. J., Hakistan, H. A. & Hare, R. D. (1988). Factor structure of the psychopathy checklist. *Journal of Consulting and Clinical Psychology*, 56, 741-747. doi: 10.1037/0022-006X.56.5.741
- Harris, J. R. (1995). Where is the Child's Environment? A group socialization theory of development. *Psychological Review*, 102, 458-489. doi: 10.1037/0033-295X.102.3.458



- Hart, S., Cox, D., & Hare, R. (1995). *Manual for the Psychopathy Checklist: Screening Version (PCL:SV)*. Toronto: Multi-Health Systems.
- Hart, S., Watt, K. A., & Vincent, G. (2002). Commentary on Seagrave and Grisso: Impressions of the state of the art. *Law and Human Behavior*, *26*, 241-246. doi: 10.1023/A:1014648227688
- Heavey, C. L., & Linz, D. (1993). Predicting men's antisocial behavior against women: The interaction model of sexual aggression. *Sexual Aggression: Issues in Etiology, Assessment, and Treatment*. New York: Taylor & Francis Group
- Hickey, N., McCrory, E., Farmer, E., & Vizard, E. (2008). Comparing the developmental and behavioural characteristics of female and male juveniles who present with sexually abusive behaviour. *Journal of Sexual Aggression*, *14*, 241-252. doi: 10.1080/14789940802159371
- Hicks, B. M., Bernat, E., Malone, S. M., Iacono, W. G., Patrick, C. J., Krueger, R. F. & McGue, M. (2007). Genes mediate the association between P3 amplitude and externalizing disorders. *Psychophysiology*, *44*, 98–105. doi: 10.1111/j.1469-8986.2006.00471.x
- Hicks, B. M., Blonigen, D. M., Kramer, M. D., Krueger, R. F., Patrick, C. J., Iacono, W. G., & McGue, M. (2007). Gender differences and developmental change in externalizing disorders from late adolescence to early adulthood: a longitudinal twins study. *Journal of Abnormal Psychology*, *116*, 433-447. doi: 10.1037/0021-843X.116.3.433.

- Hicks, B. M., South, S. C., DiRago, A. C., Iacono, W. G., & McGue, M. (2009). Environmental Adversity Increases Genetic Risk for Externalizing Disorders. *Archives of General Psychiatry*, 66(6), 640–648.
- Hovestadt, A. J., Anderson, W. T., Piercy, F. P., Cochran, S. W. and Fine, M., 1985. A family-of-origin scale. *Journal of Marital and Family Therapy*, 11, 287–297. doi: 10.1111/j.1752-0606.1985.tb00621.x
- Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55. doi: 10.1080/10705519909540118
- Huizinga, D., Esbensen, F., & Welher, A. W. (1994). Examining developmental trajectories in delinquency using accelerated longitudinal research designs. In H. Kerner & E. Weitekamp (Eds.), *Cross-national longitudinal research on human development and criminal behavior* (pp. 203-216). Amsterdam: Kluwer.
- Hunter, J. A., Hazelwood, R. R., & Slesinger, D. (2000). Juvenile-perpetrated sex crimes: Patterns of offending and predictors of violence. *Journal of Family Violence*, 15, 81-93. doi: 10.1023/A:1007553504805
- Hummel, P., Thömke, V., Oldenürger, H. A., & Specht, F. (2000). Male adolescent sex offenders against children: Similarities and differences between those offenders with and those without a history of sexual abuse. *Journal of Adolescence*, 23, 305-317. doi:10.1006/jado.2000.0316
- Hunter, J. A., Jr., and Figueredo, A. J. (1999). Factors associated with treatment compliance in a population of juvenile sexual offenders. *Sexual Abuse: A Journal of Research and Treatment*, 11, 49-67. doi: 10.1023/A:1021380812737

- Hunter, J. A., Figueredo, A. J., Becker, J. V., & Malamuth, N. (2007). Non-sexual delinquency in juvenile sexual offenders: The mediating and moderating influences of emotional empathy. *Journal of Family Violence, 22*, 43-54. doi: 10.1007/s10896-006-9056-9
- Paterson, J. E., Field, J. & Pryor, J. (1994). Adolescents' perceptions of their attachment relationships with their mothers, fathers, and friends. *Journal of Youth and Adolescence, 23*, 579-600. doi: 10.1007/BF01537737
- Johnson, G. M., & Knight, R. A. (2000). Developmental antecedents of sexual coercion in juvenile sexual offenders. *Sexual Abuse: A Journal of Research and Treatment, 12*, 165-178. doi: 10.1023/A:1009546308248
- Johnson, W, McGue, M., & Iacono, W. G. (2009). School performance and genetic and environmental variance in antisocial behavior at the transition from adolescence to adulthood. *Developmental Psychology, 45*, 973-987. doi: 10.1037/a0016225
- Jones, M. (2007, July 22). How can you distinguish a budding pedophile from a kid with real boundary problems? *The New York Times Magazine*, Retrieved from <http://www.nytimes.com/2007/07/22/magazine/22juvenile-t.html>.
- Jonson-Reid, M., & Way, I. (2001). Adolescent sexual offenders: Incidence of childhood maltreatment, serious emotional disturbance, and prior offenses. *American Journal of Orthopsychiatry, 71*, 120-130. doi: 10.1037/0002-9432.71.1.120
- Kaufman, A. S., & Kaufman, A. S. (1985) Kaufman Test of Educational Achievement: Comprehensive Form manual. Circle Pines, MN: American Guidance Service.

- Kazdin, A. E. (1997). Conduct disorder across the lifespan. In S. S.Luthar, J. A. Burack, D. Cicchetti, & J. R. Weisz (Eds.), *Developmental psychopathology: Perspectives on adjustment, risk, and disorder*, (pp. 248–272). New York: Cambridge University Press.
- Kerns, K. A. (2008). "Attachment in Middle Childhood". In J. Cassidy & P. R. Shaver PR. (Eds.), *Handbook of Attachment: Theory, Research and Clinical Applications*. (pp. 366–382). New York: Guilford Press.
- Kim-Cohen, J., Caspi, A., Taylor, A., Williams, B., Newcombe, R., Craig, I. W., & Moffitt, T. E. (2006). MAOA, maltreatment, and gene–environment interaction predicting children’s mental health: New evidence and a meta-analysis. *Molecular Psychiatry*, *11*, 903–913. doi:10.1038/sj.mp.4001851
- Knight, R. A., Daversa, M. T., & Sims-Knight, J. E. (2007, November). The role of psychopathy in the etiology, current manifestation, and life course of sexual aggression. *26th Annual Research and Treatment Conference*. The Association for the Treatment of Sexual Abusers, San Diego, California.
- Knight, R. A., Prentky, R. A., & Cerce, D. (1994). The development, reliability, and validity of an inventory for the multidimensional assessment of sex and aggression. *Criminal Justice and Behavior*, *21*, 72-94.
- Knight, R. A., & Sims-Knight, J. E. (2005). Testing an etiological model for male juvenile sexual offending against females. *Journal of Child Sexual Abuse*, *13*, 33-55. doi: 10.1300/J070v13n03\_03
- Knight, R. A., & Sims-Knight, J. E. (2003). The developmental antecedents of sexual coercion against women: Testing alternative hypotheses with structural equation

modeling. *Annals of the New York Academy of Sciences*, 989, 72-85.

doi: 10.1111/j.1749-6632.2003.tb07294.x

Kobak, R. & Madsen, S. (2008). "Disruption in Attachment Bonds". In J. Cassidy & P. R. Shaver (Eds). *Handbook of Attachment: Theory, Research and Clinical Applications* (pp. 23-47). New York: Guilford Press.

Krueger, R. F., Hicks, B. M., Patrick, C. J., Carlson, S. R., Iacono, W. G., & McGue, M. (2002). Etiologic connections among substance dependence, antisocial behavior and personality: Modeling the externalizing spectrum. *Journal of Abnormal Psychology*, 111, 411-424. doi: 10.1037//0021-843X.111.3.411

Krueger, R. F., McGue, M., & Iacono, W. G. (2001). The higher-order structure of common DSM mental disorders: Internalization, externalization, and their connections to personality. *Personality and Individual Differences*, 30, 1245–1259. doi:10.1016/S0191-8869(00)00106-9

Lahey, B. B., & Waldman, I. D. (2003). A developmental propensity model of the origins of conduct problems during childhood and adolescence. In B. B. Lahey, T. E. Moffitt, & A. Caspi (Eds.), *Causes of conduct disorder and serious delinquency* (pp. 76–117). New York: Guilford Press.

Lalumière, M. L., Harris, G., Quinsey, V., & Rice, M. (2005). The causes of rape: Understanding individual differences in the male propensity for sexual aggression. *Washington, DC: American Psychological Association*,

Langevin, R., Wortzman, G., Wright, P., & Handy, L. (1989). Studies of brain damage and dysfunction in sex offenders. *Annals of sex research*, 2, 163-179. doi: 10.1007/BF00851321

- Langton, C. M., Barbaree, H. E., Harkins, L., & Peacock, E. J. (2006). Sex offenders' response to treatment and its association with recidivism as a function of psychopathy. *Sexual Abuse: A Journal of Research and Treatment, 18*, 99-120. doi: 10.1007/s11194-006-9004-5
- Larsson, H., Andershed, H., & Lichtenstein, P. (2006). A genetic factor explains most of the variation in psychopathic personality. *Journal of Abnormal Psychology, 115*, 221-230. doi:10.1037/0021-843X.115.2.221
- Larsson, H., Viding, E., Rijdsdijk, F.V., & Plomin, R. (2008). Relationships between parental negativity and childhood antisocial behavior over time: a bidirectional effects model in a longitudinal genetically informative design. *Journal Abnormal Child Psychology, 36*, 633–645. doi: 10.1007/s10802-007-9151-2
- Laub, J. H., & Sampson, R. J. (2001). Understanding desistance from crime. *Crime and Justice, 28*, 1-69.
- Langevin, R., Write, P., & Handy, L. (1988). Empathy, assertiveness, aggressiveness, and defensiveness among sex offenders. *Annals of Sex Research, 1*, 533–547. doi: 10.1007/BF00854715
- Lawson, D. M. (2008). Attachment, interpersonal problems, and family of origin functioning: differences between partner violent and non partner violent men. *Psychology of Men & Masculinity, 9*, 90-105. doi:10.1037/1524-9220.9.2.90
- Lawson, J. S., Marshall, W. L., & McGrath, P. (1997). The social self-esteem inventory. *Educational & Psychological Measurement, 39*, 803–811. doi: 10.1177/001316447903900413

- Lerner, R. M., & Galambos, N. L. (1998). Adolescent development: challenges and opportunities for research, programs, and policies. *Annual Review of Psychology, 49*, 413-446.
- Letourneau, E. J., & Miner, M. H. (2005). Juvenile sex offenders: A case against the legal and clinical status quo. *Sexual Abuse: A Journal of Research and Treatment, 17*, 293-312. doi: 10.1007/s11194-005-5059-y
- Lightfoot, S., & Evans, I. M. (2000). Risk factors for a New Zealand sample of sexually abusive children and adolescents. *Child Abuse & Neglect, 24*, 1185-1198. doi:10.1016/S0145-2134(00)00173-3
- Lilienfeld, S. O., & Andrews, B. P. (1996). Development and preliminary validation of a self-report measure of psychopathic personality traits in noncriminal populations. *Journal of Personality Assessment, 66*, 488–524. doi: 10.1207/s15327752jpa6603\_3
- Lilienfeld, S. O., & Fowler, K. A. (2006). The self-report assessment of psychopathy: Problems, pitfalls, and promises. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 107–132). New York: Guilford.
- Lindsey, R. E., Carlozzi, A. F., & Eells, G. T. (2001). Differences in the dispositional empathy of juvenile sex offenders, non-sexoffending delinquent juveniles, and nondelinquent juveniles. *Journal of Interpersonal Violence, 16*, 510–522. doi: 10.1177/088626001016006002
- Loeber, R., Farrington, D. P., Stouthamer-Loeber, M., & Van Kammen, W. B. (1998). *Antisocial behavior and mental health problems: Explanatory factors in childhood and adolescence*. Mahwah, NJ: L. Erlbaum Associates.

- Loney, B. R., Frick, P. J., Clements, C. B., Ellis, M. L., & Kerlin, K. (2003). Callous-unemotional traits, impulsivity, and emotional processing in antisocial adolescents. *Journal of Clinical Child and Adolescent Psychology, 32*, 66-80. doi:10.1207/S15374424JCCP3201\_07
- Lopez, B., Schwartz, S. J., Prado, G., Campo, A. E., & Pantin, H. (2008). Adolescent neurological development and its implications for adolescent substance use prevention. *Journal of Primary Prevention, 29*, 5-35. doi: 10.1007/s10935-007-0119-3
- Lösel, F. (1998). Treatment and management of psychopaths. In D. J. Cooke, A. E. Forth, & R. D. Hare (Eds.), *Psychopathy: Theory, Research, and Implications for Society* (pp. 303-354). Dordrecht, the Netherlands: Kluwer Academic.
- Lynam, D. R. (1997). Pursuing the psychopath: Capturing the fledgling psychopath in a nomological net. *Journal of Abnormal Psychology, 106*, 425-438. doi: 10.1037/0021-843X.106.3.425
- Lynam, D. R., Caspi, A., Moffitt, T. E., Loeber, R., & Stouthamer-Loeber, M. (2007). Longitudinal evidence that psychopathy scores in early adolescence predict adult psychopathy. *Journal of Abnormal Psychology, 116*, 155-165. doi:10.1037/0021-843X.116.1.155
- 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. doi: 10.1007/s10648-005-5724-0



- Lynam, D. R., Loeber, R., & Stouthamer-Loeber, M. (2008). The stability of psychopathy from adolescence into adulthood: The search for moderators. *Criminal Justice and Behavior, 35*, 228-243.
- Lyons, M. J., True, W. R., Eisen, S. A., Goldberg, J., Meyers, J. M., Farone, S. V., ... Tsuang, M. T. (1995). Differential heritability of adult and juvenile antisocial traits. *Archives of General Psychiatry, 53*, 906-915.
- MacMillan, H. L., Fleming, J. D., Trocme, N., Boyle, M. H., Wong, M., Racine, Y. A., ... Offord, D. R. (1997). Prevalence of child physical and sexual abuse in the community: Results from the Ontario health supplement. *Journal of the American Medical Association, 278*, 131-135.
- Marshall, W. L., & Barbaree, H. E. (1990). An integrated theory of the etiology of sexual offending. In W. L. Marshall, D. R. Laws, & H. E. Barbaree (Eds.), *Handbook of sexual assault: Issues, theories and treatment of the offender* (pp. 257-275). New York: Basic Books.
- Marshall, W. L. and Maric, A., (1996). Cognitive and emotional components of generalized empathy deficits in child molesters. *Journal of Child Sexual Abuse, 5*, 101-110. doi: 10.1300/J070v05n02\_06
- Masten, A. S. (2001). Ordinary magic; Resilience processes in development. *American Psychologist, 56*(3), 227-238.
- McCrary, E., Hickey, N., Farmer, E., & Vizard, E. (2008). Early-onset sexually harmful behaviour in childhood: A marker for life-course persistent antisocial behaviour? *The Journal of Forensic Psychiatry & Psychology, 19*, 382-395. doi: 10.1080/14789940802159371

- McEwen, B. S. (2007). Physiology and neurobiology of stress and adaptation: Central role of the brain. *Physiological Reviews*, *87*, 873-904.  
doi:10.1152/physrev.00041.2006 0031-9333/07
- McGue, M., Bouchard, T. J., Iacono, W. G., & Lykken, D. T. (1993). Behavioral genetics of cognitive ability: a lifespan perspective. In R. Plomin & G. E. McClearn (Eds.) *Nature, nurture, and psychology* (pp. 59-76). Washington D.C.: American Psychological Association.
- McGue, M., Elkins, I., Walden, B., & Iacono, W. G. (2005). Perceptions of the parent-adolescent relationship: a longitudinal investigation. *Developmental Psychology*, *41*, 971-984. doi: 10.1037/0012-1649.41.6.971
- McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *American Psychologist* *53*(2), 185-204. doi: 10.1037/0003-066X.53.2.185
- McCrae, R. R., & Costa Jr, P. T. (1997). Personality trait structure as a human universal. *American Psychologist*, *52*(5), 509-516.
- Meehl, P. E. (1996). *Clinical versus statistical prediction: A theoretical analysis and a review of the evidence*. Northvale, NJ: Jason Aronson. (Original work published 1954).
- Meyer-Lindenberg, A., Buckholtz, J. W., Kolachana, B., Hariri, A. R., Pezawas, L., Blasi, G., ... Weinberger, D. R. (2006). Neural mechanisms of genetic risk for impulsivity and violence in humans. *Proceedings of the National Academy of Sciences, U.S.A.*, *103*, 6269-6274. doi: 10.1073/pnas.0511311103
- Meyers, K., McLellan, A. T., Jaeger, J. L., & Pettinati, H. M. (1995). The development of the Comprehensive Addiction Severity Index for Adolescents (CASI): An

- interview for assessing multiple problems of adolescents. *Journal of Substance Abuse Treatment*, 12, 181–193. doi:10.1016/0740-5472(95)00009-T
- Mischel, W., Shoda, Y., & Rodriguez, M. L. (1989). Delay of gratification in children. *Science*, 244, 933–938.
- MIDSA Clinical Manual*. (2007). Bend, OR: Augur Enterprises, Inc. Available at [www.midsa.us](http://www.midsa.us).
- Miller, M. B. (1995). Coefficient alpha: A basic introduction from the perspectives of classical test theory and structural equation modeling. *Structural Equation Modeling*, 2, 255-273. doi: 10.1080/10705519509540013
- Millon, T. (1994). Manual: Millon Adolescent Clinical Inventory. Minneapolis, MN: NCS.
- Miner, M, Knight, R., Robinson, B., Berg, D., Swinburne Romine, R. S., & Netland, J. D. (2010). Understanding sexual perpetration against children: Effects of attachment style, interpersonal involvement, and hypersexuality. *Sexual Abuse: A Journal of Research and Treatment*, 22, 58-77. doi: 10.1177/1079063209353183
- Miner, M. H., & Munns, R. (2005). Isolation and normlessness: Attitudinal comparisons of adolescent sex offenders, juvenile offenders, and nondelinquents. *International Journal of Offender Therapy and Comparative Criminology*, 49, 491. doi: 10.1177/0306624X04274103
- Miner, M. H., Siekert, G. P., & Ackland, M. (1997). *Evaluation: Juvenile sex offender treatment program, Minnesota Correctional Facility - Sauk Centre* (Final Report - Biennium 1995-1997). Minneapolis, MN: University of Minnesota, Program in Human Sexuality.

- Moffitt, T. E. (1993). Adolescence-limited and life course persistent anti-social behavior: a developmental Taxonomy. *Psychological Review*, *100*, 674-701.
- Moffitt, T. E. (2005). The new look of behavioral genetics in developmental psychopathology: gene-environment interplay in antisocial behaviors. *Psychological Bulletin*, *131*, 533-554. doi:10.1037/0033-2909.131.4.533
- Moffitt, T. E., & Caspi, A. (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Development and Psychopathology*, *13*, 355-375. doi: 10.1017/S0954579401002097
- Monahan, K.C., Steinberg, L., Cauffman, E., & Mulvey, E. P.(2009). Trajectories of antisocial behavior and psychosocial maturity from adolescence to young adulthood. *Developmental Psychology*, *45*, 1654-1668. doi: 10.1037/a0015862.
- Monto, M., Zgourides, G., Wilson, J., & Harris, R. (1994). Empathy and adolescent male sex-offenders. *Perceptual & Motor Skills*, *79*(3, Pt2), Special Issue.
- Moos, R., & Moos, B. (1994). Family Environment Scale Manual: Development, Applications, Research (3<sup>rd</sup> ed.). Palo Alto, CA: Consulting Psychologist Press.
- Morey, L. C. (1991). *Personality Assessment Inventory: A professional manual*. Odessa, FL: Psychological Assessment Resources.
- Moriarty, N., Stough, C., Tidmarsh, P., Eger, D., & Dennison, S. (2001). Deficits in emotional intelligence underlying adolescent sexual offending. *Journal of Adolescence*, *24*, 743–751. doi:10.1006/jado.2001.0441
- Muris, P. Meester, C., van Melick, M. & Zwambag, L. (2001). Self-reported attachment style, attachment quality, and symptoms of anxiety and depression in young

adolescents. *Personality and Individual Differences*, 30, 809-818.

doi:10.1016/S0191-8869(00)00074-X

Netland, J. D., & Miner, M. H. (2007, November). Information about the caregiver environment and caregiver history of adolescent sex offenders. Poster session at 26<sup>th</sup> Annual Research and Treatment Conference of the Association for the Treatment of Sexual Abusers, San Diego, California.

Neumann, C. S., Kosson, D. S., Forth, A. E., & Hare, R. D. (2006). Factor structure of the hare psychopathy checklist: Youth version (PCL: YV) in incarcerated adolescents. *Psychological Assessment*, 18, 143-154. doi:10.1037/1040-3590.18.2.142

Neumann, C. S., Vitacco, M. J., Hare, R. D., & Wupperman, P. (2005). Reconstructing the “reconstruction” of psychopathy: A Comment on Cooke, Michie, Hart, & Clark. *Journal of Personality Disorders*, 19, 624-640.  
doi: 10.1521/pedi.2005.19.6.624

Odgers, C.L., Moffitt, T.E., Tach, L.M., Sampson, R.J., Taylor, A, Matthews, C.L, & Caspi, A. (2009). The protective effects of neighborhood collective efficacy on British children growing up in deprivation: A developmental analysis. *Developmental Psychology*, 45, 942-957. doi: 10.1037/a0016162

Olson, D. H., Portner, J., & Bell, R. (1982). FACES-II. In D. H. Olson, H. I. McCubbin, H. L. Barnes, A. Larson, M. Muxen, & M. Wilson. (Eds.), *Family inventories* (pp. 5–24). St. Paul, MN: University of Minnesota, Department of Family Social Science.

- Olver, M. E., Stockdale, K. C., & Wormith, J. S. (2009). Risk assessment with young offenders: A meta-analysis of three assessment measures. *Criminal Justice and Behavior, 36*, 329-353. doi: 10.1177/0093854809331457
- Olver, M. E., & Wong, S. C. P. (2006). Psychopathy, sexual deviance, and recidivism among sex offenders. *Sexual Abuse: A Journal of Research and Treatment, 18*, 65-82. doi: 10.1007/s11194-006-9006-3
- O'Neill, M. L., Lidz, V., & Heilbrun, K. (2003). Adolescents with psychopathic characteristics in a substance abusing cohort: Treatment process and outcomes. *Law and Human Behavior, 27*, 299-313. doi: 10.1023/A:1023435924569
- Ooi, Y. P., Ang, R. P., Fung, D. S. S., Wong, G., & Cai, Y. (2006). The impact of parent-child attachment on aggression, social stress, and self-esteem. *School Psychology International, 27*, 552-566. doi: 10.1177/0143034306073402
- Parker, J. S., & Benson, M. J. (2004). Parent-adolescent relations and adolescent functioning: self-esteem, substance abuse, and delinquency. *Adolescence, 39*(155), 519-530.
- Paterson, J. E., Field, J., & Pryor, J., (1994). Adolescents' perceptions of their attachment relationships with their mothers, fathers, and friends. *Journal of Youth and Adolescence, 23*, 579-600. doi: 10.1007/BF01537737
- Patrick, C. J., Fowles, D. C., & Krueger, R. F. (2009). Triarchic conceptualization of psychopathy: Developmental origins of disinhibition, boldness, and meanness. *Development and Psychopathology, 21*, 913-938. doi: 10.1017/S0954579409000492

- Pettila, J., & Skeem, J. L. (2003). An introduction to the special issues on juvenile psychopathy and some reflections on the current debate. *juvenile psychopathy: The debate. Behavioral Sciences & the Law, 21*(6), 689-694.
- Pinker, S. (2002). *The Blank Slate: The Modern Denial of Human Nature*. London: Allen Lane.
- Pollinger, J., Samuels, L., & Stadolnik, R. (2005). A comparative study of the behavioral, personality, and fire history characteristics of residential and outpatient adolescents (ages 12-17) with firesetting behaviors. *Adolescence San Diego, 40*(158), 345-353.
- Porter, S., Fairweather, D., Drugge, J., Herve, H., Birt, A., & Boer, D. P. (2000). Profiles in psychopathy in incarcerated sex offenders. *Criminal Justice and Behavior, 27*, 216–33. doi: 10.1177/0093854800027002005
- Plomin, R., Fulker, D. W., Corley, R., & DeFries, J. C. (1997). Nature, nurture, and cognitive development from 1 to 16 years: a parent-offspring adoption study. *Psychological Science, 8*, 442-447.
- Prentky, R., & Righthand, S. (2003). *Juvenile sex offender assessment protocol-II (J-SOAP-II) manual*. US Dept. of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.
- Quay, H. C., & Peterson, D. R. (1987). *Manual for the Revised Behavior Problem Checklist*. Coral Gables, FL: University of Miami.
- Quinsey, V. L., Skilling, T. A., Lalumiere, M. L., & Craig, W. M. (2004). *Juvenile delinquency: Understanding the origins of individual differences*. American Psychological Association.

- Raine, A. (2008). From genes to brain to antisocial behavior. *Current Directions in Psychological Science*, 17, 323-328. doi: 10.1111/j.1467-8721.2008.00599.x
- Raine, A., & Yang, Y. (2006). Neural foundations to moral reasoning and antisocial behavior. *Social, Cognitive, and Affective Neuroscience*, 1, 203–213. doi: 10.1093/scan/nsl033
- Reynolds, W. M. (1987). *Reynolds Adolescent Depression Scale: Professional manual*. Odessa, FL: Psychological Assessment Resources, Inc.
- Rhee, S. H., & Waldman, I. D. (2002). Genetic and environmental influences on antisocial behavior: a meta-analysis of twin and adoption studies. *Psychological Bulletin*, 128, 490-529. doi: 10.1037/0033-2909.128.3.490
- Righthand, S., & Welch, C. (2001). Juveniles who have sexually offended: a review of the professional literature. Office of Juvenile Justice and Delinquency Prevention. U.S. Department of Justice. Retrieved from [www.ncjrs.gov/pdffiles1/ojjdp/184739.pdf](http://www.ncjrs.gov/pdffiles1/ojjdp/184739.pdf)
- 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. doi: 10.1007/BF02352266
- 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. DOI: 10.1037//UO33-29U9.12O.U
- Robins, L. M., Babor, T. & Cottler, L. B. (1987). *Composite International Diagnostic Interview: Expanded Substance Abuse Module*. St Louis, MO: Washington University Department of Psychiatry.



- Roid, G. H. & Fitts, W. H., (1988). *The Tennessee Self-Concept Scale: Revised Manual*, Los Angeles: Western Psychological Services.
- Ronis, S. T., & Borduin, C. M. (2007). Individual, family, peer, and academic characteristics of male juvenile sexual offenders. *Journal of Abnormal Child Psychology*, 35, 153-163. doi: 10.1007/s10802-006-9058-3
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rowe, D. C., & Osgood, D. W. (1984). Heredity and sociological theories of delinquency: a reconsideration. *American Sociological Review*, 49(4), 526-540.
- Rowe, D. C., Vazsonyi, A. T., & Figueredo, A. J. (1997). Mating-effort in adolescence: A conditional or alternative strategy. *Personality & Individual Differences*, 23, 105–115. doi:10.1016/S0191-8869(97)00005-6
- Rucklin, V., Vermeiren, R., Schwab-Stone, M., & Kopolov, R. (2003). Psychopathology and the onset of conduct problems in juvenile delinquents. *Journal of Clinical Psychiatry*, 8, 913-920.
- Rutter, M. (1995). "Clinical Implications of Attachment Concepts: Retrospect and Prospect". *Journal of Child Psychology & Psychiatry*, 36, 549–71.
- Salekin, R. T. (2009). Psychopathology and assessment: Contributing knowledge to science and practice. *Journal of Psychopathology and Behavioral Assessment*, 31, 1-6. doi: 10.1007/s10862-009-9126-4
- Salekin, R. T. (2008). Psychopathy and recidivism from mid-adolescence to young adulthood: Cumulating legal problems and limiting life opportunities. *Journal of Abnormal Psychology*, 117, 386-395. doi: 10.1037/0021-843X.117.2.386

- Salekin, R. T. (2006). Psychopathy in children and adolescents: Key issues in conceptualization and assessment. In C. J. Patrick (Ed.), *Handbook of psychopathy*. New York: Guilford Press.
- 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. doi: 10.1007/s10802-005-5722-2
- Salekin, R. T., Leistico, A. M. 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. doi: 10.1007/s10802-005-5726-Y
- Sarason, I. G., Levine, H. M., Basham, R. B., & Sarason, B. R. (1983). Assessing social support: the social support questionnaire. *Journal of Personality and Social Psychology*, *44*, 127-139.
- Schiltz, K., Witzel, J., Northoff, G., Zierhut, K., Gubka, U., Fellmann, H., ... Bogerts, B. (2007). Brain pathology in pedophilic offenders evidence of volume reduction in the right amygdala and related diencephalic structures. *Archives of General Psychiatry*, *64*, 737-746.
- Schmahl, C. G., Vermetten, E., Elzinga, B. M., & Bremner, J. D. (2002). Magnetic resonance imaging of hippocampal and amygdala volume in women with childhood abuse and borderline personality disorder. *Psychiatric Research: Neuroimaging*, *122*, 193-198.

- Schwartz, B. K., Cavanaugh, D., Pimental, A., & Prentky, R. (2006). Descriptive study of precursors to sex offending among 813 boys and girls: Antecedent life experiences. *Victims & Offenders*, 61-77. doi: 10.1080/15564880500498986
- Seagrave, D., & Grisso, T. (2002). Adolescent development and the measurement of juvenile psychopathy. *Law and Human Behavior*, 26, 219-239. doi: 10.1023/A:1014696110850
- Seto, M. C., & Lalumière, M. L. (2006). Conduct problems and juvenile sexual offending. *The Juvenile Sex Offender*, 166–188.
- Sheline, Y. I. Sanghavi, M., Mintun, M. A., & Gado, M. H. (1999). Depression duration but not age predict hippocampal volume loss in medically healthy women with recurrent major depression. *The Journal of Neuroscience*, 19, 5034-5043.
- Shields, I. W. (1993), The use of the Young Offender-Level of Service Inventory with adolescents. *IARCA Journal Community Corrections*, 5, 10–26
- Shields, I. W. & Simourd, D. J. (1991). Predicting predatory behavior in a population of incarcerated young offenders. *Criminal Justice Behavior*, 21, 180–194. doi: 10.1177/0093854891018002006
- Silberg, J. L., Rutter, M., Tracy, K., Maes, H. H., & Eaves, L. (2007). Etiological heterogeneity in the development of antisocial behavior: The Virginia twin study of adolescent behavioral development and the young adult follow-up. *Psychological Medicine*, 37, 1193-1202. doi: 10.1017/S0033291707000293
- Simpson, J. A., Collins, W. A., Tran, S., & Haydon, K. C. (2007). Attachment and the experience of emotions in romantic relationships: A developmental perspective.

*Journal of Personality and Social Psychology*, 92, 355-367. doi: 10.1037/0022-3514.92.2.355

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.

doi: 10.1002/bsl.563

Skeem, J. L. & Cooke, D. J. (2010). Is criminal behavior a central component of psychopathy? Conceptual directions for resolving the debate. *Psychological Assessment*, 22, 433-445. doi:10.1037/a0008512

Skeem, J. L., & Petrila, J. (2004). Introduction to the special issue on juvenile psychopathy, volume 2: Juvenile psychopathy: Informing the debate. *Behavioral Sciences & the Law*, 22, 1-4. doi: 10.1002/bsl.580

Sloman, L., Atkinson, L. Milligan, K, & Liotti, G. (2002). Attachment, social rank, affect regulation: speculations on an ethological approach to family interaction. *Family Process*, 41, 313-327. doi: 10.1111/j.1545-5300.2002.41304.x

Smallbone, S. W. (2006). An attachment-theoretical revision of Marshall and Barbaree's integrated theory of the etiology of sexual offending. In W. L. Marshall, Y. M. Fernandez, L. E. Marshall, & G. A. Serran (Eds.). *Sexual offender treatment: Controversial issues* (pp. 93-107). Chichester, West Sussex, England: Wiley.

Smallbone, S. W., Wheaton, J., & Hourigan, D. (2003). Trait empathy and criminal versatility in sexual offenders. *Sexual Abuse: A Journal of Research & Treatment*, 15, 49-60. doi: 10.1023/A:1020615807663

- Somerville, L. H., Jones, R. M., & Casey, B. J. (2010). A time of change: Behavioral and neural correlates of adolescent sensitivity to appetitive and aversive environmental cues. *Brain and Cognition, 72*, 124–133. doi:10.1016/j.bandc.2009.07.003
- Spaccarelli, S., Bowden, B., Coatsworth, J. D., & Kim, S. (1997). Psychosocial correlates of male sexual aggression in a chronic delinquent sample. *Criminal Justice and Behavior, 24*, 71-95. doi: 10.1177/0093854897024001005
- Spence, D. C., Helmreich, R. L., & Holahan, C. K. (1979). Negative and positive components of psychological masculinity and femininity and their relationships to self-reports of neurotic and acting out behaviors. *Journal of Personality & Social Psychology, 37*, 1673–1682. doi:10.1037/0022-3514.37.10.1673
- Spitzer, R. L, Williams, J. B. W., Gibbon, M., & First, M. B. (1990). *Structured Clinical Interview for DSM-III-R, Patient Edition/Non-patient Edition (SCID-P/SCID-NP)*. Washington, D.C.: American Psychiatric Press, Inc.
- South, S. C., Krueger, R. F., Johnson, W., & Iacono, W. G. (2008). Adolescent personality moderates genetic and environmental influences on the relationship with parents. *Journal of Personality and Social Psychology, 94*, 899-912. doi: 10.1037/0022-3514.94.5.899.
- Statistics Canada (2005). National longitudinal survey of children and youth microdata user guide—Cycle 5. Ottawa.
- Steinberg, L. (2004). Risk taking in adolescents: What changes and why? *Annals of the New York Academy of Science, 1021*, 51-58. doi: 10.1196/annals.1308.005

- Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Science*, 9, 69-74. doi:10.1016/j.tics.2004.12.005
- Steinberg, L. (2007). Risk-taking in adolescence: New perspectives from brain and behavioral science. *Current Directions in Psychological Science*, 16, 55-59.
- Stinson, J. D., Becker, J. V., & Tromp, S. (2005). A preliminary study on findings of psychopathy and affective disorders in adult sex offenders. *International Journal of Law and Psychiatry*, 28, 637-649. doi:10.1016/j.ijlp.2004.10.001
- Stone, S. (2007). Child maltreatment, out-of-home placement and academic vulnerability: A fifteen-year review of evidence and future directions. *Child and Youth Services*, 29, 139-161. doi:10.1016/j.chilyouth.2006.05.001
- Suchy, Y., Whittaker, J. W., Strassberg, D. S., & Eastvold, E. (2009). Neurocognitive differences between pedophilic and non pedophilic child molesters. *Journal of International Neuropsychological Society*, 15, 248-257. doi: 10.1017/S1355617709090353
- Teicher, M.H. (2002). The neurobiology of child abuse. *Scientific American*, 68-75.
- Teicher, M. H., Anderson, S. L., Polcari, A., Anderson, C. M., Navalta, C. P., & Kim, D. M. (2003). The neurobiological consequences of early stress and childhood maltreatment. *Neuroscience and Biobehavioral Reviews*, 27, 33-44. doi:10.1016/S0149-7634(03)00007-1
- Teicher, M. H., Samson, J. A., Polcari, A., & McGreenery, C. E. (2006). Sticks, stones, and hurtful words: relative effects of various forms of childhood maltreatment. *American Journal of Psychiatry*, 136, 993-1000. doi: 10.1176/appi.ajp.163.6.993

- Tierney, W. (2001). An evaluation of self-report measures of cognitive distortions and empathy among Australian sex offenders. *Archives of sexual behavior* 30, 495-519. doi: 10.1023/A:1010239217517
- Thompson, B. (2004). Exploratory and confirmatory factor analysis: Understanding concepts and applications. Washington, D.C.: American Psychological Association.
- Tully, E. C., Iacono, W. G., & McGue, M. (2008). An adoption study of parental depression as an environmental liability for adolescent depression and childhood disruptive disorders. *American Journal of Psychiatry*, 165, 1148-1154. doi: 10.1176/appi.ajp.2008.07091438
- Vandiver, D. M. (2006). A prospective analysis of juvenile male sex offenders: Characteristics and recidivism rates as adults. *Journal of Interpersonal Violence*, 21, 673-688. doi: 10.1177/0886260506287113
- van Wijk, A. P., Blokland, A. A. J., Duits, N., Vermeiren, N., & Harkink, J. (2007). Relating psychiatric disorders, offender and offence characteristics in a sample of adolescent sex offenders and non-sex offenders *Criminal Behaviour and Mental Health*, 17, 15–30. doi: 10.1002/cbm.628
- van Wijk, A., Loeber, R., Vermeiren, R., Pardini, D., Bullens, R., & Doreleijers, T. (2005). Violent juvenile sex offenders compared with violent juvenile nonsex offenders: Explorative findings from the Pittsburgh Youth Study. *Sexual Abuse: A Journal of Research and Treatment*, 17, 333-352. doi: 10.1007/s11194-005-5062-3

- van Wijk, A., Vermeiren, R., Loeber, R., Hart-Kerkhoffs, L., Doreleijers, T., & Bullens, R. (2006). Juvenile sex offenders compared to non-sex offenders: A review of the literature 1995-2005. *Trauma, Violence, & Abuse, 7*, 227-243. doi: 10.1177/1524838006292519
- Vaughn, B. E. (2005). Discovering pattern in developing lives: reflections on the Minnesota study of risk and adaptation from birth to adulthood. *Attachment & Human Development, 7*, 369-380. doi: 10.1080/14616730500365944
- Ventura, J., Liberman, R. P., Green, M. F., Shaner, A., & Mintz, J. (1998). Training and quality assurance with the structured clinical interview for DSM-IV (SCID-I/P). *Psychiatric Research, 79*, 163-173.
- Veresov, N. N. (1999). Undiscovered Vygotsky: Etudes on the pre-history of cultural-historical psychology. New York: Peter Lang.
- 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. doi: 10.1111/j.1469-7610.2004.00393.x
- Vitale, J. E., Newman, J. P., Bates, J. E., Goodnight, J., Dodge, K. A., & Pettit, G. S. (2005). Deficient behavioral inhibition and anomalous selective attention in a community sample of adolescents with psychopathic traits and low-anxiety traits. *Journal of Abnormal Child Psychology, 33*, 461-470. doi: 10.1007/s10802-005-5727-X
- Vythilingam, M., Heim, C., Newport, J., Miller, A. H., Anderson, E., Bronen, R. ... Bremner, J. D. (2002). Childhood trauma associated with smaller hippocampal



volume and with major depression. *The American Journal of Psychiatry*, 159, 2072-2080.

- Walters, G. D., Knight, R. A., & Thornton, D. (2009). The latent structure of sexual violence risk: A taxometric analysis of widely used sex offender actuarial risk measures. *Criminal Justice and Behavior*, 36, 290. doi: 10.1177/0093854808330341
- Ward, T., Keenan, T. & Hudson, S. M. (2000). Understanding cognitive, affective, and intimacy deficits in sex offenders: A developmental perspective, *Aggression and Violent Behavior*, 5, 41–62. doi:10.1016/S1359-1789(98)00025-1
- Wechsler, D. (2003). *The Wechsler Intelligence Scale for Children* (4<sup>th</sup> ed.), San Antonio, TX: The Psychological Corporation.
- Wechsler, D. (1992). *Manual for the Wechsler Individual Achievement Test*. San Antonio, TX: Psychological Corporation.
- Wechsler, D. (1991). *Wechsler Intelligence Scale for Children* (3rd ed.). New York: Psychological Corporation.
- White, S. F., Cruise, K. R., & Frick, P. J. (2009). Differential correlates to self-report and parent-report of Callous–Unemotional traits in a sample of juvenile sexual offenders. *Behavioral Science & the Law*, 27, 910-928.
- White, J. W., & Humphrey, J. A. (1990). A theoretical Model of Sexual Assault: An Empirical Test. Paper presented at the Annual Meeting of the Southeastern Psychological Association (36<sup>th</sup>, Atlanta, GA, April 4-7, 1990).
- Widom, C. S., Raphael, K. G., & DuMont, K. A. (2004). The case for prospective longitudinal studies in child maltreatment research: Commentary on

- Dube, Williamson, Thompson, Felitti, and Anda (2004). *Child Abuse and Neglect*, 28, 715-722. doi: 10.1177/0022427803253802
- Wiesner, M., & Capaldi, D. M. (2003). Relations of childhood and adolescent factors in trajectories of young men. *Journal of Research in Crime and Delinquency*, 40(3) 231-262. doi: 10.1177/0022427803253802
- Williams, S., & McGee, R. (1991). Adolescents' self-perceptions of their strengths. *Journal of Youth and Adolescence*, 20, 325-337. doi: 10.1007/BF01537400
- Westen, D., Nakash, O., Thomas, C., & Bradley, R. (2006). Clinical assessment of attachment patterns and personality disorder in adolescents and adults. *Journal of Consulting and Clinical Psychology*, 74, 1065-1085. doi: 10.1037/0022-006X.74.6.1065
- Worling, J. R. (1995). Adolescent sibling-incest offenders: Differences in family and individual functioning when compared to adolescent nonsibling sex offenders. *Child Abuse & Neglect*, 19(5), 633-643.
- Worling, J., & Curwen, T. (2000). Adolescent sexual offender recidivism: Success of specialized treatment and implications for risk prediction. *Child Abuse and Neglect: The International Journal* 24(7): 965-982
- Yates, T.M. (2007). The developmental consequences of child emotional abuse: A neurodevelopmental perspective. *Journal of Emotional Abuse*, 7, 9-34. doi: 10.1300/J135v07n02\_02
- Young, J. E., & Brown, G. (1994). *Young schema questionnaire-SF*. New York: Cognitive Therapy Center.

Young, S. E., Stallings, M. C., Corley, R. P., Krauter, K. S., & Hewitt, J. K. (2000).

Genetic and environmental influences on behavioral disinhibition. *American Journal of Medical Genetics (Neuropsychiatric Genetics)*, *96*, 684–695.

doi: 10.1002/1096-8628(20001009)96:5<684::AID-AJMG16>3.0.CO;2-G

Zakireh, B., Ronis, S. T., & Knight, R. A. (2008). Individual beliefs, attitudes, and

victimization histories of male juvenile sexual offenders. *Sexual Abuse: A*

*Journal of Research and Treatment*, *20*, 323. doi: 10.1177/1079063208322424

Zhang, F., & Labouvie-Vief, G. (2004). Stability and fluctuation in adult attachment

style over a 6-year period. *Attachment & Human Development*, *6*, 419-437. doi:

10.1080/1461673042000303127



## Appendix A

## Email Correspondence with University of Minnesota Institutional Review Board

From: Jason Netland [mailto:netl0015@umn.edu]  
Sent: Wednesday, May 27, 2009 9:41 AM  
To: [irb@umn.edu](mailto:irb@umn.edu)  
Subject: Questions about research staff/graduate student using extant dataset for dissertation

University of Minnesota Institutional Review Board,

Hello. As a graduate student I have been working on the Risk for Sexual Abuse and Roots of Sexual Abuse studies at the Program in Human Sexuality in the Department of Family Medicine and Community Health. My name has been listed as one of the research staff (Project Coordinator) on previous study applications for IRB approval. For my dissertation I would like to analyze data from this study. The research question will be different than previous studies. Do I need to get IRB approval for using this dataset? Please let me know.

Thank you,  
Jason

Jason Netland, M.A.  
Counseling and Student Personnel Psychology Doctoral Student  
Department of Educational Psychology  
250 Education Sciences Building  
56 East River Road  
Minneapolis, MN 55455-0364 USA  
[netl0015@umn.edu](mailto:netl0015@umn.edu)

## Appendix B

## Email Correspondence with University of Minnesota Institutional Review Board

**From:** perke001@umn.edu  
**To:** netl0015@umn.edu  
**Sent:** Wednesday, May 27, 2009 4:01 PM  
**Subject:** RE: Questions about research staff/graduate student using extant dataset for dissertation

Hi Jason,

Since the question is different you should submit a new application. If none of the data in the dataset is identifiable you can submit an Exempt Category application. If you are receiving identifiers, submit the full Social/Behavioral Sciences form.

Regards,

Jeffery Perkey, MLS, CIP  
Research Compliance Supervisor

Human Research Protection Program  
Institutional Review Board (IRB)  
Social and Behavioral Sciences  
D528 Mayo Memorial Building  
Mayo Mail Code (MMC) 820  
420 Delaware Street S.E.  
Minneapolis, MN 55455

612-626-5922  
612-626-6061 (fax)  
perke001@umn.edu  
www.irb.umn.edu

## Appendix C

## Email Correspondence with University of Minnesota Institutional Review Board

**From:** Jason Netland [mailto:netl0015@umn.edu]  
**Sent:** Wednesday, June 03, 2009 10:28 AM  
**To:** Jeffery Perkey  
**Subject:** Re: Questions about research staff/graduate student using extant dataset for dissertation

Hi Jeff,

I wanted to check in with you about which application form I should be submitting for my doctoral dissertation. I had emailed previously to let you know I am the project coordinator of the study so I have access to identifiers but that my analysis would not require me to use any identifying information.

Please let me know if I should submit the exempt category or the full social/behavioral sciences form.

Thanks,  
Jason

---

Jason D Netland, M.A.  
Project Coordinator  
University of Minnesota  
Program in Human Sexuality  
1300 South Second Street, Ste 180  
Minneapolis, MN 55454  
p: 612-624-8362  
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## Appendix D

## Email Correspondence with University of Minnesota Institutional Review Board

**From:** perke001@umn.edu  
**To:** netl0015@umn.edu  
**Sent:** Wednesday, June 3, 2009 10:37 AM  
**Subject:** RE: Questions about research staff/graduate student using extant dataset for dissertation

Right, yes, sorry that I did not respond when you asked this question!! You have access to the identifiers but since the analysis does not require identifiers, I think you are still ok for exempt category 4.

Regards,

Jeffery Perkey, MLS, CIP  
Research Compliance Supervisor

Human Research Protection Program  
Institutional Review Board (IRB)  
Social and Behavioral Sciences  
D528 Mayo Memorial Building  
Mayo Mail Code (MMC) 820  
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## Appendix E

## Email Correspondence with University of Minnesota Institutional Review Board

0906E68727 - PI Netland - IRB - RECD New Application

1 message

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irb@umn.edu <irb@umn.edu>

Fri, Jun 26, 2009 at 1:42 PM

To: netl0015@umn.edu

Study Number: 0906E68727

Principal Investigator: Jason Netland

Title(s):

Measuring Psychopathy Traits and Antisocial Behaviors in Three Groups of Male Adolescent Sex Offenders and Male Non Sexual Delinquents.

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The study has been assigned the above referenced study number which should be used in all communication with this office.

You may follow the progress of the review of your study in the Track Documents section at eResearch Central  
<http://eresearch.umn.edu/>

The IRB reminds you that research with human subjects should not be initiated until you have received notification of the IRB's action on your proposal and final approval is granted for the study.

Once your study has been approved, we will be happy to send confirmation of its approval to your funding agency. If you would like us to do so, please send us the name and address of your contact person at the agency.

If you have any questions, please call the IRB office at 612-626-5654.

## Appendix F

## Email Correspondence with University of Minnesota Institutional Review Board

0906E68727 - PI Netland - IRB - Exempt Study Notification

1 message

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irb@umn.edu <irb@umn.edu>

Wed, Jul 1, 2009 at 4:30 PM

To: netl0015@umn.edu

TO : netl0015@umn.edu,

The IRB: Human Subjects Committee determined that the referenced study is exempt from review under federal guidelines 45 CFR Part 46.101(b) category #4 EXISTING DATA; RECORDS REVIEW; PATHOLOGICAL SPECIMENS.

Study Number: 0906E68727

Principal Investigator: Jason Netland

Title(s):

Measuring Psychopathy Traits and Antisocial Behaviors in Three Groups of Male Adolescent Sex Offenders and Male Non Sexual Delinquents.

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This e-mail confirmation is your official University of Minnesota RSPP notification of exemption from full committee review. You will not receive a hard copy or letter. This secure electronic notification between password protected authentications has been deemed by the University of Minnesota to constitute a legal signature.

The study number above is assigned to your research. That number and the title of your study must be used in all communication with the IRB office.

If you requested a waiver of HIPAA Authorization and received this e-mail, the waiver was granted. Please note that under a waiver of the HIPAA Authorization, the HIPAA regulation [164.528] states that the subject has the right to request and receive an accounting of Disclosures of PHI made by the covered entity in the six years prior to the date on which the accounting is requested.

If you are accessing a limited Data Set and received this email, receipt of the Data Use Agreement is acknowledged.

This exemption is valid for five years from the date of this correspondence and will be filed inactive at that time. You will receive a notification prior to inactivation. If this research will extend beyond five years, you must submit a new application to

the IRB before the study's expiration date.

Upon receipt of this email, you may begin your research. If you have questions, please call the IRB office at (612) 626-5654.

You may go to the View Completed section of eResearch Central at <http://eresearch.umn.edu/> to view further details on your study.

The IRB wishes you success with this research.

## Appendix G

Institutional File Review Coding Used for This Study (File Review Information Not Collected or Relevant to this Study was Omitted)

**GENERAL INSTRUCTIONS****Assignments of NA and UNCLEAR**

The UNCLEAR category was used if the available data were ambiguous or insufficient (i.e., the data were insufficient to code a variable reliably) or when the necessary data were absent (i.e., no data were found that pertained to the variable). The value of UNCLEAR varies by question, but is always the highest possible value.

N/A was used if the variable was "not applicable" in a given case or for a given purpose (e.g., subject had no sexual offense). In most cases, the value of the N/A option is zero (0). Where zero is a legitimate value, N/A is coded as "88".

**The "At Least" Rule**

The "at least" rule pertains to certain variables in which the precise amount or number is unknown, but a minimum amount or number is known. Rather than coding the variable as unclear, it was deemed preferable to code the minimum amount or number that was known (e.g., it is known that subject's family moved at least four times, but there was evidence that there were more moves. In this case, the variable would be coded as "4").

**The "Other" Rule**

The "other" rule pertains to certain variables in which the "other" response option appears. Whenever the "other" response option is selected, specify "other" by writing the description in the margin near the question on the coding sheet.

**DEMOGRAPHIC DATA**

Demographic data includes descriptive variables (e.g., age, date of birth, race).

1. **Subject Identification; ID;**  
001-350

The subject identification number is the first variable in each information file. It is assigned consecutively from "001" to "350".

2. **Date of Review; DOR;**  
Actual date mm/dd/yy

"DOR" refers to the date on which the subject's file is coded by the rater. If coding of the subject's file requires more than one day, use the date coding began on the file.

**3. Date of Birth; DOB;**

Actual date mm/dd/yy

"DOB" refers to the subject's date of birth.

**4. Race; RACE;**

- |                     |                            |
|---------------------|----------------------------|
| 1- White            | 5- Asian                   |
| 2- African American | 6- Biracial, Specify _____ |
| 3- Hispanic         | 7- Other, Specify _____    |
| 4- Native American  | 8- Unclear                 |

Specifies the subject's race/ethnicity.

**EDUCATIONAL DATA**

Educational Data includes variables to describe behavioral problems (conduct) in school.

**9. Problems in Grammar School; PG;**

- 1- No problems
- 2- Slight (some minor discipline or attendance problems)
- 3- Moderate (seems to be a behavior or attendance problem)
- 4- Severe (serious discipline and/or attendance problem)
- 5- Unclear

Indicates global behavioral/disciplinary rating of subject during grammar school (grades K-6) including both conduct and attendance problems. Code "1" if there is no indication in the record of any difficulties. Code "2" if a few instances of absences/truancies or minor conduct problems have been noted (e.g., subject had come to the attention of the teacher for some problem). Code "3" if indication that parents were called in, if subject was fighting with peers or if there were many absences/truancies. Code "4" if subject was a serious problem (e.g., out-of-control and beating/bullying others). Suspensions may be indicative of both minor (e.g., smoking) and major problems, therefore consider within context. This variable is intended for acting out kinds of behavior problems rather than problems such as withdrawal, etc. Consider some social interactions as evidence of problems (e.g., fighting). Use judgment in deciding which coding most accurately describes the subject's experience in school.

**10. Problems in JR. HIGH; PJH;**

- 1- No problems
- 2- Slight (some minor discipline or attendance problems)
- 3- Moderate (seems to be a behavior or attendance problem)
- 4- Severe (serious discipline and/or attendance problem)
- 5- Unclear

Code same as variable PG, but for grades 7,8,9.

**11. Problems in HIGH SCHOOL; PHS;**

- 0- N/A - subject has not attended high school
- 1- No problems
- 2- Slight (some minor discipline or attendance problems)
- 3- Moderate (seems to be a behavior or attendance problem)
- 4- Severe (serious discipline and/or attendance problem)
- 5- Unclear

Code "0" if subject did not go beyond grade 9. Code same as variable PG, but for grades 10,11,12.

**DRUG/ALCOHOL ABUSE/USE DATA**

Drug/Alcohol Abuse Data includes variables to describe any substance abuse/use history subject may have had over his lifetime and variables to describe his recent substance abuse, if any. Recent means within the year prior to the most recent incarceration. ALCOHOL/DRUG ABUSE is defined in terms of problems or interference with subject's life due to drugs/alcohol use rather than in terms of amount of or frequency of drug/alcohol use. In the case that documented information only states that subject was a heavy drug/alcohol user, make inferences from other information in the record as to the degree of interference with subject's life caused by this use.

**12. Non-script Drug Use History; NSDH;**

- 1- No history
- 2- Yes, history
- 3- Unclear

Indicates whether or not subject has any history over his lifetime of illicit use of drugs. Code "2" for use of drugs whose possession and use are labeled "illegal" (e.g., marijuana, cocaine, other "street" drugs) or for abuse of drugs prescribed by a MD illegally (e.g., MD colludes in subject's abuse of drug). Code "2" for use of a legally prescribed drug either by use of more than prescribed amount or use of drug for some purpose other than that intended by prescription. Do not code "2" for a one-time overdose episode, but do code "2" even if subject only experimented briefly (one or two times) but did not continue to use. If there is no mention in record of any history of

drug use, code "1". If there is a strong indication in the record that subject may have used drugs but no actual statement that he did, code "3".

**13. Age at Onset Drug Use; ANSD;**

- 0- N/A no drug use history (NSDH is "no")
- 99- Unclear

Write in actual age at last birthday. Code "0" if variable NSDH above is "1". Indicates subject's age when he first began using drugs (as defined in variable NSDH above). If no specific age is given, but there is a statement that one could extrapolate an approximate age (e.g., in the 7th grade), record this equivalent age.

**14. Alcohol History; AH;**

- 1- No
- 2- Yes
- 3- Unclear

Indicates whether or not subject has ever in his lifetime used any alcoholic beverages. Code "2" even if subject only experiments with alcohol or even if subject only drank at one time in his life and currently abstains.

**15. Age at Onset Alcohol Use; AAB;**

- 0- N/A no alcohol use history (AH is "no")
- 99- Unclear

Write in actual age at last birthday. Code "0" if variable AH above is "1". Indicates subject's age when he first began using alcoholic beverages in his lifetime (as defined in variable AH above).

**CRIMINAL DATA**

The following categories of Criminal Offenses are to be coded mutually exclusively. A serious sexual offense, which included other non-sexual charges (e.g., Rape, Assault & Battery, Larceny), will be coded only under the "Serious Sexual Offense" data section. The same rule applies to the other categories (Non-Sexual Victimless, Non-Sexual Victim Involved, and Nuisance Sexual). Example: the subject committed an offense and was charged with Assault & Battery, Robbery, Larceny of Motor Vehicle. The A&B and Robbery charges indicate a victim was involved so this offense is coded only in the "Non-Sexual Victim Involved" data section. If details of the offense indicate there was a sexual assault or attempted sexual assault but the charge does not reflect this, code for the sexual assault.

**In order for a crime to be coded, it must have been noted in the subject's file; the subject would not have to have been officially charged by the police and/or the**

**courts for the offense.** Offenses committed while incarcerated will also be counted as long as it meets the criteria stated previously.

Offense is defined as a distinct incident of a criminal nature involving an act or acts committed by the subject. There are several different cases where it may be difficult to discern the number of court appearances, or number of charges, or number of counts, or number of victims. Each offense will be a "set" of acts making up an incident or event perpetrated by the subject. Each separate event will be considered a separate offense, if it is distinct and separate in time and/or place.

Example 1 Subject approached a victim and robbed him of his wallet.

Charges Unarmed Robbery.

Code As one (1) offense, one (1) charge, and one (1) victim.

Example 2 Same as above but two victims at the same time.

Charges Unarmed Robbery (2 counts).

Code As (1) offense, two (2) charges, and two (2) victims.

Example 3 Subject struck the victim in the head with his fist and robbed him of his wallet. As he was leaving the scene he approached another man the next street over (or even further down on the same street as first victim), struck this victim on the head with his fist and robbed him of his wallet.

Charges Assault & Battery (2 counts), Unarmed Robbery (2 counts).

Code As two (2) offenses, four (4) charges, and two (2) victims.

Example 4 Subject picked up victim while victim was hitchhiking drove victim to secluded area and forced victim to have sexual intercourse. Subject proceeded to drive to another secluded area, stopped car and forced victim to submit to sexual intercourse again. When subject finished, he struck victim in the mouth and threatened to kill her if she told police. Subject then drove her back to original place of encounter and fled the scene.

Charges Rape (2 counts), Assault & Battery, Kidnapping.

Code As one (1) offense, four (4) charges, one (1) victim.

Example 5 Same as above but two victims at the same time.

Charges Rape (4 counts), Assault & Battery (2 counts), Kidnapping (2 counts).

Code As one (1) offense, eight (8) charges, and two (2) victims.

### **Category 1 - Non-Sexual Victimless**

These offenses are non-sexual in nature, and do not involve any acts against another person directly. Some examples are: Breaking & Entering (B & E), any motor vehicle violations, Drunkenness, Possession of Drugs, Burglary, Larceny so long as there is no direct confrontation between subject and the person being robbed, Illegitimacy...



**Category 2 - Non-Sexual Victim Involved**

These offenses are non-sexual in nature (victim was not sexually assaulted, nor was there an attempt to sexually assault). They involve a criminal act against another person via verbal and/or physical assaults. Some examples are: Assault & Battery, Kidnapping, Robbery (robbery as opposed to burglary implies the presence of a victim), Murder...

**Category 3 - Nuisance Sexual**

These offenses involve some type of sexually oriented crime. They are sexual in nature, but do not involve physically assaulting or touching a victim in any way. The victims in these crimes are the objects of the subject's sexual acting out. Some examples are: Open & Gross Lewdness (subject exposed himself and masturbated in front of his victim), Indecent Exposure, Lewd & Lascivious in Speech and Behavior, stealing underwear...

**Category 4 - Serious Sexual**

These offenses involve a physical sexual assault or attempt at physical sexual assault on a victim by the subject (so long as any physical touching is involved). It is usually clear when a sexual assault has been committed, but not always apparent when only an attempt was made. Serious sexual offenses are later coded for "offense type by act" and the available choices are: 1-molest, 2-attempted rape, 3-rape, 4-repeated rape, 5-other, 6-unclear.

The details of the offense must be the prime source from which the coder must make a decision in classifying the offense. He/she must use a combination of available facts, including previous modus operandi of the subject, and his/her own judgment.

**NON-SEXUAL, VICTIMLESS DATA****56. Total Offenses; TOJ1;**

99- Unclear

Write in the number of non-sexual victimless offenses committed by the subject using the "at least" rule. If there is no indication in the files as to the number of offenses, code "99". If subject never committed a non-sexual victimless criminal act, code "0".

**57. Age First Offense; AFO1;**

88- N/A (TOJ1 is "0")

99- Unclear

If variable TOJ1 is "0", code "88". If TOJ1 is greater than "0", write in the subject's age at the time of the first TOJ1 offense. If exact age is not known, code "99".

**NON-SEXUAL, VICTIM INVOLVED DATA****58. Total Offenses; TOJ2;**

99- Unclear

Write in the number of non-sexual victim involved offenses committed by the subject. Use the "at least" rule, but if no "at least" determination can be made, code "99". If subject never committed a non-sexual victim involved criminal act as a juvenile, code "0".

**59. Age First Offense; AFO2;**

88- N/A (TOJ2 is "0")

99- Unclear

If variable TOJ2 is "0", code "88". If TOJ2 is greater than "0", write in the subject's age at the time of the first NSVI offense. If exact age is not known, code "99".

**NUISANCE SEXUAL DATA****60. Total Offenses; TOJ3;**

99- Unclear

Write in the number of nuisance sexual offenses committed by the subject. If there is no indication in the files as to the number of offenses, code "99". If subject never committed a nuisance sexual offense as a juvenile, code "0".

**SERIOUS SEXUAL DATA – FOR PRIOR OFFENSES****61. Total Offenses; TOJ4;**

99- Unclear

Write in the number of serious sexual offenses committed by the subject **prior to the current offense**. If there is no indication in the files as to the number of offenses, code "99".

**62. Age First Offense; AFO4;**

88- N/A (TOJ4 is "0")

99- Unclear

Write in the subject's age at the time of the first serious sexual offense. Use the actual date of offense and birth-date to calculate actual age. If date of offense is not available, use the court date. If age is not known or is not able to be calculated, code age at admission to facility.

**63. Age Youngest Victim; AYW;**

- 88- N/A (TOJ4 is "0")
- 99- Unclear

Write in the youngest victim's age at the time of any prior serious sexual offenses.

**64. Gender of Victims; GV2;**

- 0- N/A (TOJ4 is "0")
- 1- Male
- 2- Female
- 3- Both Male and Female
- 4- Unclear

Code if the sex of the victim(s) in the above offenses (TOJ4) is known from the information in the files. Code "1" if all were males, "2" if all were females, or "3" if there was a combination. Code "4" if facts are not available.

**INFORMATION FOR EACH PRIOR OFFENCE**

This document provides room to space for up to eight prior victims. If there are greater than or more than eight prior victims, please document this information somewhere on the file coding form.

**68. Date of Offense; victim 1-8 (SDO)**

Actual date mm/dd/yy

"SDO" refers to the date on which the offense occurred. Use all available information to obtain this. If a range is given, use at least rule. If no information is available then code 99.

**69. Victim DOB; victim 1-8 (SVDOB)**

Actual age

"SVDOB" refers to the date on which the victim was born. When not available, use 9/9/99. If date is available, but not year, use 12/31/XX.

**70. Victim Age; victim 1-8 (SVA)**

- 88- N/A (TOJ4 is "0")
- 99- Unclear

Write in the age of the victim for offense being coded. Calculate from date of birth if available, or from stated age per official reports. If no information is available regarding victim's age, code "99". If there is sufficient evidence in the file to estimate the victim's age, code age using this information (e.g., victim was in her teens).

## **SERIOUS SEXUAL OFFENSE DATA – FOR CURRENT OFFENSE**

### **78. Offender's Age; AGE;**

99- Unclear

Specifies offender's age at the time of the offense. Code offender's age at last birthday prior to actual date of offense if known. If not known, determine offender's age at time of offense based on other information in the file.

## **VICTIM DATA**

Victim Data is to be coded for each victim coded in variable NV (numbers of victims). If there is more than one victim involved in one offense, code information for each (coding sheet allows for a possible three victims during one offense). Code multiple victims in chronological order according to age starting with the youngest. If there is only one (1) victim, code "N/A" for the following two lines of victim data.

### **88. Victim Age; VA1;**

88- N/A no offense

99- Unclear

Write in the age of the youngest victim for offense being coded. Calculate from date of birth if available, or from stated age per official reports. If no information is available regarding victim's age, code "99". If there is sufficient evidence in the file to estimate the victim's age, code age using this information (e.g., victim was in her teens).

### **91. Subject's Group Assignment; GRP;**

0- Non-sex delinquent

1- Child

2- Peer

3- Non-contact

9- Ineligible

Specify the subject's group assignment for the purposes of the present research study. If the subject has not been adjudicated for a sex crime code "0". If the subject has any victim under the age of 12 and more than 3 years younger than himself, code "1". If subject's victim(s) are over the age of 12 and less than 3 years younger than himself, code "2". If a subject has both child and peer victim(s) and more than 1/3 of the victims were children, code "1". If subject has no hands-on sex offences but was either adjudicated for a non-contact sex offence (e.g. window peeping, exposing, etc.) or in sex offender specific treatment for a non-contact sex offence, code "3". Note that the subject does not need to have been adjudicated for a sex crime in order to be included in the present study. He needs only to be in treatment for a sexual offense. If for any reason the subject does not meet the criteria for participation in this study or is ineligible, code "9".

## Appendix H

## MIDSA Psychopathy Traits Survey Questions and Possible Responses

## Grandiosity

1. I deserve much more than I have gotten. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True
2. I do whatever I can get away with, and do not worry what is right. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True
3. For me the highest value in life is getting all the goodies I can. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True
4. My most important goal in life is to get as much money as I can. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True

## Interpersonally Exploitative

1. There have been times when I took advantage of someone. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True
2. I can easily charm someone into doing almost anything for me. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True
3. I have lied to someone to get them to do what I want them to. 1 Never, 2 Once, 3 Sometimes (2 to 10 times), 4 Fairly Often (11 to 50 times), 5 Very Often (over 50 times)
4. I use my charm to get people to notice me. 0 Never, 1 Once, 2 Rarely (less than once a month), 3 Sometimes (once or twice a month), 4 Fairly Often (once or twice a week), 5 Very Often (almost every day)
5. I have conned someone to get what I wanted. 1 Never, 2 Once, 3 Sometimes (2 to 10 times), 4 Fairly Often (11 to 50 times), 5 Very Often (over 50 times)

## Lack of Empathy (scores reversed)

1. Seeing someone who is crying makes me feel like crying. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True
2. I feel sorry for people less fortunate than me. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True
3. I have felt sorry after telling people off, even if they deserved it. 1 Never, 2 Once, 3 Sometimes (2 to 10 times), 4 Fairly Often (11 to 50 times), 5 Very Often (over 50 times)
4. I have had thoughts that made me feel ashamed of myself. 1 Never, 2 Once, 3 Sometimes (2 to 10 times), 4 Fairly Often (11 to 50 times), 5 Very Often (over 50 times)
5. I have felt very bad about myself after I cheated or did something wrong. 1 Never, 2 Once, 3 Sometimes (2 to 10 times), 4 Fairly Often (11 to 50 times), 5 Very Often (over 50 times)
6. When I see someone being treated unfairly, I feel sorry for them. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True

### Impulsivity

1. I have lost control of myself, even though I did not want to. 1 Never, 2 Once, 3 Sometimes (2 to 10 times), 4 Fairly Often (11 to 50 times), 5 Very Often (over 50 times)
2. I have gotten in trouble for things that were not my fault. 1 Never, 2 Once, 3 Sometimes (2 to 10 times), 4 Fairly Often (11 to 50 times), 5 Very Often (over 50 times)
3. I get mad at people who ask me stupid questions. 0 Never, 1 Once, 2 Rarely (less than once a month), 3 Sometimes (once or twice a month), 4 fairly Often (once or twice a week), 5 Very Often (almost every day)
4. I have acted on impulse or without thinking. 0 Never, 1 Once, 2 Rarely (less than once a month), 3 Sometimes (once or twice a month), 4 fairly Often (once or twice a week), 5 Very Often (almost every day)
5. I do things that make me feel really bad about myself. 0 Never, 1 Once, 2 Rarely (less than once a month), 3 Sometimes (once or twice a month), 4 fairly Often (once or twice a week), 5 Very Often (almost every day)
6. I have sudden changes in my moods. 0 Never, 1 Once, 2 Rarely (less than once a month), 3 Sometimes (once or twice a month), 4 fairly Often (once or twice a week), 5 Very Often (almost every day)
7. I have hurt someone's feeling by saying something without thinking. 0 Never, 1 Once, 2 Rarely (less than once a month), 3 Sometimes (once or twice a month), 4 fairly Often (once or twice a week), 5 Very Often (almost every day)
8. I have had frightening feelings that I could not understand. 1 Never, 2 Once, 3 Sometimes (2 to 10 times), 4 Fairly Often (11 to 50 times), 5 Very Often (over 50 times)
9. I feel bored. 0 Never, 1 Once, 2 Rarely (less than once a month), 3 Sometimes (once or twice a month), 4 fairly Often (once or twice a week), 5 Very Often (almost every day)

### Risk Taking

1. I like to take chances and live dangerously. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True
2. Some people tell me I take foolish risks. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True
3. I like to drive fast, right on the edge of danger. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True
4. I like fast cars and fast women. 1 Definitely False, 2 Possibly False, 3 Not Sure, 4 Possibly True, 5 Definitely True