AN EXAMINATION OF THE DIRECT AND INDIRECT ASSOCIATIONS BETWEEN ADULT PSYCHOPATHY AND CHILDHOOD MALTREATMENT

by

RACHEL COLLEEN ROCK

MARTIN SELLBOM, COMMITTEE CHAIR

JOHN LOCHMAN

DEBRA NELSON-GARDELL

A THESIS

Submitted in partial fulfillment of the requirements
for the degree of Master of Arts
in the Department of Psychology
in the Graduate School of
The University of Alabama

TUSCALOOSA, ALABAMA

2012

ABSTRACT

Psychopathy is a constellation of maladaptive personality traits such as callousness, dominance, pathological lying, a lack of empathy, and manipulativeness (Cleckley, 1942; Hare, 2003), which has been associated with both genetic and environmental etiological factors (e.g., Blair, Peschardt, Budhani, Mitchell, & Pine, 2006). One such environmental factor is childhood maltreatment, which has been previously found to predict psychopathy (e.g., Verona et al., 2005). The overall aim of this study was to examine the associations between four childhood maltreatment (sexual abuse, physical abuse, psychological abuse, and neglect) predictor variables and two psychopathy facets (affective-interpersonal and social deviance). I also investigated the possibility of behavioral disconstraint and negative emotionality as mediators, and gender and the affective-interpersonal facet as moderators in these and variants of these associations. The findings suggest that sexual abuse, physical abuse, and neglect directly and/or indirectly predict psychopathy. The results also indicate that behavioral disconstraint and specific negative emotions mediate these associations, and that gender and the affective-interpersonal facet serves as moderators. These findings are important as they shed light on the etiology of psychopathy, as well as offer implications regarding differences in gender and the affective-interpersonal facet in these associations.

DEDICATION

This thesis is dedicated to my family, boyfriend, and close friends, who have encouraged me throughout my academic career, and have offered endless support through all of my endeavors.

LIST OF ABBREVIATIONS AND SYMBOLS

α	Cronbach's alpha: used to measure internal consistency
β	Beta: a standardized partial regression coefficient
M	Mean: the sum of a set of measurements divided by the number of measurements in the set
N	Sample size of group
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
r	Pearson product-moment correlation
t	Computed value of *t* test
SD	Standard Deviation: value of variation from the mean
$\chi 2$	Chi-square: test of significance of model fit
$\Delta\chi 2$	Delta chi-square: used to test the difference in fit between two models
<	Less than
>	Greater than
=	Equal to

ACKNOWLEDGMENTS

I am grateful to everyone who assisted and supported me with this research project. In particular, I am appreciative of my committee chair, Dr. Martin Sellbom, who shared his statistical expertise, as well as his knowledge regarding psychopathy. I would also like to thank my committee members, Dr. John Lochman and Dr. Debra Nelson-Gardell, who provided me with invaluable suggestions and support. I truly valued their patience and understanding throughout this process.

I am also appreciative of my family for their continuous encouragement since I was young. They have always motivated me to achieve both my academic and noncollegiate goals.

Finally, I would like to thank my friends and fellow graduate students who have helped and encouraged me throughout graduate school.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Psychopathy is a severe personality disorder comprised of maladaptive characteristics such as callousness, superficial charm, insincerity, pathological lying, dominance, grandiosity, and manipulativeness (Cleckley, 1941; Hare, 2003). Furthermore, individuals with psychopathy are incapable of feeling deep-seated emotions, such as empathy, love, guilt, or remorse (Cleckley, 1941; Hare, 2003). This maladaptive personality pattern has been associated with violent behavior, recidivism (Walters, 2003), substance abuse (Smith & Newman, 1990), and poor treatment response in adults (Rice, Harris, & Cormier, 1992). The Psychopathy Checklist- Revised (PCL-R; Hare, 2003) is currently considered the "gold standard" for assessing this disorder. Initially, the PCL-R items were conceptualized broadly according to two domains of affective-interpersonal traits (callousness, remorselessness, pathological lying, manipulativeness, glibness, dominance) and social deviance (parasitic lifestyle, need for stimulation, irresponsibility, impulsivity, behavioral problems) identified via factor analysis (e.g., Hare, 1991). More recently, these two factors have been broken down into four facets, conceptualized by affective (such as callousness, lack of remorse), interpersonal (such as grandiosity, manipulativeness, deceitfulness), behavioral (such as impulsivity, irresponsibility), and antisocial (such as aggression, criminal versatility) traits (Hare, 2003). The PCL-R is burdensome to use and inefficient in non-incarcerated samples due to the necessity of institutional records in scoring; therefore, self-report questionnaires have become increasingly popular in non-institutionalized settings. One

such example is the Hare Self-Report Psychopathy Scale (SRP-III; Paulhus, Neumann, & Hare, in press), modeled after PCL-R, which was used in the current investigation to focus on elucidating the associations between psychopathy and childhood maltreatment.

Putative Etiological Mechanisms

There has been a substantial amount of research examining the etiological mechanisms associated with psychopathy. There is support for both genetic and environmental factors (e.g., Blair, Peschardt, Budhani, Mitchell, & Pine, 2006; Blonigen, Carlson, Krueger, & Patrick, 2003). The research suggests that heritability explains one-third to two-thirds of variance in psychopathic traits in both children and adolescents (Blonigen et al., 2003; Blonigen, Hicks, Krueger, Patrick, & Iacono, 2005; Viding, Blair, Moffitt, & Plomin, 2005). Genetic variation may be responsible for the many neurobiological factors associated with psychopathy, including its impairments to certain brain regions that may account for psychopathic behaviors. Psychopathy is associated with volume reductions in the amygdala (Yang, Raine, & Narr, 2006), and deficits in this structure are associated with the emotional deficits, such as a lack of empathy and fearlessness, identified in psychopathy. Indeed, research has clearly shown a link between psychopathy and poor facial emotion recognition and impaired fear conditioning (e.g., Blair, 2008; Raine & Yang, 2006), as well as deficits in moral decision-making, and social dysfunction (Blair, 2007). Thus, amygdala-mediated deficits are likely underlying the affective-interpersonal traits associated with the disorder.

Furthermore, individuals who scored high on the PCL-R had an 11% reduction in the volume of gray matter in the prefrontal cortex when compared to normal, substance-dependent, and inpatient controls (Raine, Lencz, Bihrle, LaCasse, & Colletti, 2000).

Deficits to the prefrontal cortex result in impulsivity, disinhibition, and poor planning (Koenigs et al., 2007). Thus, deficits in the prefrontal cortex are associated with many of the social deviance traits of psychopathy. Even in light of these important biological findings, genetic studies clearly indicate that environmental risk factors for psychopathy should not be neglected. One such risk factor is childhood maltreatment, which for the purposes of this investigation will be focused on childhood physical, psychological, and sexual abuse, as well as neglect. Prior to linking psychopathy with this important psychosocial risk factor, I will first consider maltreatment more broadly, particularly with regard to the development of psychopathology more generally.

Childhood Maltreatment and Mental Health

According to the U.S. Department of Health and Human Services (2010), about 702,000 children were found to be victims of child maltreatment in the Federal fiscal year 2009. About 78% suffered from neglect, about 18% were physically abused, about 10% were sexually abused, and about 8% were emotionally maltreated. Risk factors for childhood sexual abuse include female gender (e.g., Bolen, 2001; Finkelhor & Baron, 1986), pre-adolescent age (Finkelhor, Hotaling, Lewis, & Smith, 1990), parental absence for extended periods (e.g., Fleming, Mullen, & Bammer, 1997; Herman, & Hirschman, 1981), families with violent and/or poor relationships (Herman, & Hirschman, 1981; Paveza, 1988), a family history of physical abuse (Boney-McCoy, & Finkelhor, 1995; Fleming, Mullen, & Bammer, 1997), prior victimization (Boney-McCoy & Finkelhor, 1995), the presence of a stepfather (Brown, Cohen, Johnson, & Salzinger, 1998), and parental substance abuse (Dube et al., 2001; Shah, Dail, & Hendrichs, 1995). Furthermore, several studies have shown the association between childhood maltreatment

and future psychopathology, including depression, alcohol and drug abuse, anxiety disorders, personality disorders, eating disorders, and post-traumatic stress disorder (PTSD; e.g., Garner, 1991; Wonderlich et al., 2001). More specifically, childhood sexual abuse seems to be more associated with subsequent psychopathology and changes in internalized affect (Talbot, Duberstein, King, Cox, & Giles, 2000; Tong, Oates, & McDowell, 1987), whereas physical abuse appears to be more related to increases in aggressive behavior and conduct problems (Techachasen & Kolkijoven, 2001).

Research has supported indirect associations between maltreatment and psychopathology in general. An initial experience with maltreatment may sensitize the brain to other similar situational and environmental cues (Kendall-Tackett, 2000). This may cause abused individuals to act aggressively when responding to situations that resemble the initial maltreatment experience (e.g., arguments, hostile environments) (Chemtob, Novaco, Hamada, Gross, & Smith, 1997). Prior research has also determined that exposure to maltreatment results in an increased risk for negative emotionality, such as anger and anxiety (e.g., Berton & Stabb, 1996; Scarpa, 2001), and a diminished ability to control anger (Cornell et al., 1999). Similarly, Trull (2001) found that childhood abuse was significantly related to both negative emotionality and behavioral disconstraint, which are broad temperament/personality domains. Thus, childhood maltreatment may significantly influence the development of personality, including those traits that have been implicated for psychopathy (see e.g., Verona, Hicks, & Patrick, 2005; Hicks, Vaidyanathan, & Patrick, 2010), which can in turn serve as vulnerability factors for the development of various forms of psychopathology.

Childhood Maltreatment and Psychopathy

A plethora of research supports a relationship between childhood maltreatment and adult psychopathy. A history of childhood maltreatment is positively correlated with scores on the PCL instruments (Weiler & Widom, 1996; Frodi, Dernevik, Sepa, Philipson, & Bragesjö, 2001). In a sample of 1,141 sexually abused, physically abused, neglected, and non-abused children of both genders, Weiler and Widom (1996) found that individuals in the abuse/neglect group had higher PCL-R scores than the non-abused group (Weiler & Widom, 1996). Farrington (2006) found that individuals who had experienced physical neglect had significantly higher Hare Psychopathy Checklist: Screening Version (PCL: SV; Hart, Cox, & Hare, 1995) scores than those who had not experienced physical neglect 40 years earlier. In terms of specific psychopathy traits, Cima, Smeets, & Jelicic (2008) found that childhood maltreatment was related to various characteristics of psychopathy, such as impulsive nonplanfulness, impulsive antisociality, and external blame attribution.

Although there is a clear established positive association between psychopathy and childhood maltreatment, more recent research has attempted to explain how these two constructs are linked. Such research indicates that there is an indirect relationship between childhood maltreatment and psychopathy (Verona et al., 2005). Along the lines of research indicating that development of negative emotions and externalizing proclivities could serve as potential mechanisms for maltreatment and psychopathology (see earlier review), Verona et al. (2005) examined whether negative emotionality and behavioral disconstraint mediated the relationship between physical and sexual abuse and psychopathy in a large sample of incarcerated women. Their results indicated that both negative emotionality and behavioral disconstraint mediated the relationship between

physical abuse and social deviance traits of psychopathy, whereas sexual abuse contributed to the prediction of social deviance, independent of the two mediators (Verona et al., 2005). Thus, these results indicate that while they both are predictive of psychopathy, physical and sexual abuse take different paths to arrive at this outcome. It should be noted that Verona et al. (2005) focused on negative emotionality as a whole, and there is no research on whether specific types of negative emotions (e.g., anxiety, fear, and anger) are particularly responsible for this mediation between childhood abuse and psychopathy. Furthermore, this study only included incarcerated women (Verona et al. 2005), and it is important to elaborate on this association in a non-incarcerated sample of women and men together, to determine if any gender differences exist in the relationship between childhood maltreatment and psychopathy. Finally, Verona et al. (2005) did not consider other forms of childhood maltreatment, such as psychological abuse or neglect. The current investigation will address these gaps in the literature.

The majority of research examining psychopathy beyond just a total psychopathy score has revealed a clear pattern that childhood maltreatment is better linked to the social deviance rather than the affective-interpersonal traits of psychopathy. Verona et al.'s (2005) mediation model demonstrated the association of childhood physical and sexual abuse with the social deviance traits of psychopathy, but not the affective-interpersonal traits. Other studies (Kimonis, Ray, Branch, & Cauffman, 2010; Kimonis, Skeem, Cauffman, & Dmitrieva, 2011) have established the same relationship between childhood abuse and externalizing behaviors in general in both children and adults, and these effects are independent of core affective-interpersonal (also known as callous-unemotional in childhood; see Frick & White, 2008) traits. In addition, a positive

association between the affective-interpersonal psychopathy traits and childhood maltreatment, at least via negative emotionality, would run counter to the affective neuroscience research reviewed earlier. As discussed, psychopathy is associated with both structural abnormalities to the amygdala, and deficits in the processing of affective information including fear (e.g., Blair, 2008; Raine & Yang, 2006). Further, the anxiety disorders literature has indicated that negative emotional reactions due to the traumatic experience associated with maltreatment are actually associated with a hyperactive (rather than hypoactive) amygdala and fear-responsivity (e.g., Armony, Corbo, & Clement, 2005; Bryant et al., 2008; Rauch et al., 2000). Taken together, the psychopathy and anxiety findings would imply a potential moderation effect in that the indirect association between the social deviance psychopathy traits and childhood maltreatment might be stronger for those who are low on affective-interpersonal psychopathy traits, whereas potentially non-existent for those high on affective-interpersonal psychopathy traits. This remains an empirical question on which the current study hopes to shed some light.

Gender Differences

Finally, the possibility for gender differences for the association between childhood maltreatment and psychopathy must also be considered. Research suggests that men score higher on personality trait measures of aggression, agency, and social dominance, whereas women score higher on measures of stress reaction and behavioral constraint (Blonigen, Carlson, Hicks, Krueger & Iacono, 2008; Roberts, Caspi, & Moffitt, 2001). Findings regarding the differences between men and women from the effects of childhood abuse have been inconclusive about whether girls react more negatively than

boys (Constantine, 1981), or the same as boys (e.g., Urquiza & Capra, 1990; Mendel, 1995). For instance, one review indicated that significantly more women (68%) than men (42%) reported the presence of a negative effect subsequent to childhood sexual abuse (Rind & Tromovitch, 1997). Additionally, results regarding the differences between girls and boys from the effects of witnessing parental violence have been inconclusive about whether girls react more negatively than boys (Richmond & Stocker, 2007), better than boys (Grych, Fincham, Jouriles, & McDonald, 2000), or the same as boys (Grych, Jouriles, Swank, McDonald, & Norwood, 2000). These results indicate that men and women may respond differently to childhood maltreatment, including how they ultimately manifest symptoms, but there is no research directly examining gender differences in the relationship between childhood maltreatment and psychopathy.

The Current Study

This current study sought to further elaborate on the association between childhood maltreatment and adult psychopathy. The first goal was to replicate the finding that negative emotionality and behavioral disconstraint mediated the association between childhood maltreatment and psychopathy using a non-incarcerated sample with both men and women. Furthermore, because no previous study has examined the role of specific negative emotions, such as anger, fear, and anxiety, the current study broke findings down to this level as well. It was hypothesized that negative emotionality and behavioral disconstraint would mediate the relationship between childhood maltreatment and psychopathy for individuals who experienced physical, but not sexual, abuse (Verona et al., 2005). Although research shows that neglect is associated with psychopathy (Bernstein, Stein, & Handelsman, 1988; Farrington, 2006; Graham, Kimonis,

Wasserman, & Kline, 2011), there has been no research linking neglect to negative emotionality or behavioral disconstraint; therefore, it was not hypothesized that negative emotionality and behavioral disconstraint would mediate the relationship between children who experienced neglect and psychopathy. Since psychological abuse has been found to be unassociated with externalizing and antisocial behaviors (Egeland, Yates, Appleyard, & van Dulmen, 2002) and psychopathy (Graham et al., 2011), it was also not hypothesized that negative emotionality and behavioral disconstraint would mediate the relationship between children who experienced psychological abuse and psychopathy nor that there would be a direct association between psychological abuse and psychopathy.

The second goal was to determine if affective-interpersonal traits moderate the mediating relationship of childhood maltreatment with the social deviance traits of psychopathy via negative emotionality and/or behavioral disconstraint. It was hypothesized that the indirect association between maltreatment and the social deviance traits of psychopathy would be stronger for those who are low on affective-interpersonal traits relative to those who are high based on the research just reviewed.

A final goal of the current study was to determine if gender moderated the above-mentioned direct and indirect associations. Because there is no substantive literature or strong conceptual framework that can be drawn upon for this final research question, no hypotheses were stated.

CHAPTER 2

METHODOLOGY

Participants

The research questions were addressed using an archival sample consisting of 769 undergraduate students at a mid-sized Midwestern university who participated in the research for course credit. Participants ranged in age from 18 to 48 years (M = 19.90, SD = 3.48), and 94.4% reported being unmarried. The gender composition of the sample was 66% female (n = 510) and 34% male (n = 258). Although data was not formally collected on race/ethnicity, previous research from this subject pool indicates that students are mostly Caucasian (~90%) with about 7% African-American and the remaining roughly 3% from other ethnic backgrounds (see e.g., Sellbom, Ben-Porath, & Bagby, 2008; Sellbom et al., 2012).

Measures

Hare Self-Report Psychopathy Scale. The Hare SRP-III (Paulhus, Neumann, & Hare, in press) is a self-report inventory designed to assess psychopathy and its four facets to parallel the PCL-R (Hare, 2003). It consists of 64 items to which participants respond on a scale from 1 (*Disagree Strongly*) to 5 (*Agree Strongly*). The instrument yields a total score and four facet scores (affective, interpersonal, behavioral, and antisocial) For the purposes of this study, to examine the affective-interpersonal and social deviance traits upon which the majority of literature has focused, I combined the

callous affect and interpersonal manipulation facet (henceforth affective-interpersonal) and the erratic lifestyle and criminal tendencies facets (henceforth social deviance).

Minnesota Multiphasic Personality Inventory-2-Restructured Form. The MMPI-2-RF (Ben-Porath & Tellegen, 2008) is a 338-item self-report personality inventory measuring a wide range of personality and psychopathology. The inventory includes 50 scales, with validity, higher-order (H-O), restructured clinical (RC), specific problems (SP), interest, and Personality Psychopathology Five (PSY-5) scale sets.

The Negative Emotionality/Neuroticism-Revised (NEGE-r) PSY-5 scale was used to assess for the personality domain of negative emotionality. High scores indicate people who may report overwhelming negative emotions, anxiety, insecurity, inadequacy, depression, and pessimism about their lives improving. In terms of specific negative emotions, the Stress/Worry (STW) scale was used to assess for general anxiety, with high scores indicating anxiety about many things, feeling overwhelmed, unable to cope with stress, feeling like a failure, and somatic symptoms in times of high stress. The Anxiety (AXY) scale was used to assess for intense physiological anxiety. High scores indicate people who may report frequent and pervasive feelings of anxiety, dread, and fear, intrusive ideation, nightmares, and disturbed sleep, inability to cope with stress, and difficulty concentrating. The Anger Proneness (ANP) scale measures low frustration tolerance, impatience, and irritability. The Behavior-Restricting Fears (BRF) indexes multiple specific fears that may restrict normal activities both inside and outside the home. Finally, the Multiple Specific Fears (MSF) scale measures multiple fears (such as a fear of a natural event or animal), anxiety, a lack of energy, and lack of engagement in risky behaviors. Because the Stress/Worry and the Anxiety scales, and the Multiple

Specific Fears and the Behavior-Restricting Fears scales measure conceptually similar domains of anxiety and fear, respectively, these scale pairs were combined to single scores.

The Disconstraint-Revised (DISC-r) PSY-5 scale is used to assess for the personality domains of behavioral disinhibition. High scores indicate people who may report various manifestations of disconstrained and uncontrollable behavior, behavior problems in school, problems with the law, substance abuse, impulsivity, nonconformity, poor judgment, narcissism, and family problems.

These MMPI-2-RF scales have been supported extensively from a psychometric perspective, with respect to internal consistency and test-retest reliability as well as convergent and discriminant validity (e.g., Tellegen & Ben-Porath, 2008).

Child Abuse and Trauma Scale. The Child Abuse and Trauma Scale (CATS; Sanders & Giolas, 1991; Sanders & Becker-Lausen, 1995) is a 38-item self-report measure that assesses child physical abuse or punishment, verbal or psychological abuse, sexual abuse, neglect, and a negative home environment. A five-point Likert-scale is used to rate from never to always the frequency with which particular types of events occurred during the respondent's youth.

The CATS has demonstrated 6–8-week test–retest reliability ($r = .89$) and adequate internal consistency (total score $\alpha = .90$ in previous samples (Sanders & Becker-Lausen, 1995). The internal consistency total score in this sample was $\alpha = .93$. The validity of the CATS is demonstrated due to its significant correlation with dissociation, depression, stressful life events, victimization, and interpersonal problems, all of which are known to be associated with childhood maltreatment (Sanders & Becker-Lausen, 1995).

Procedure

All measures were administered in groups of up to 30 individuals by a trained, graduate student research assistant. Participants provided informed consent prior to completing the battery. The measures were administered in randomized order to prevent order effects. Upon completion, students were debriefed and received course credit for their participation.

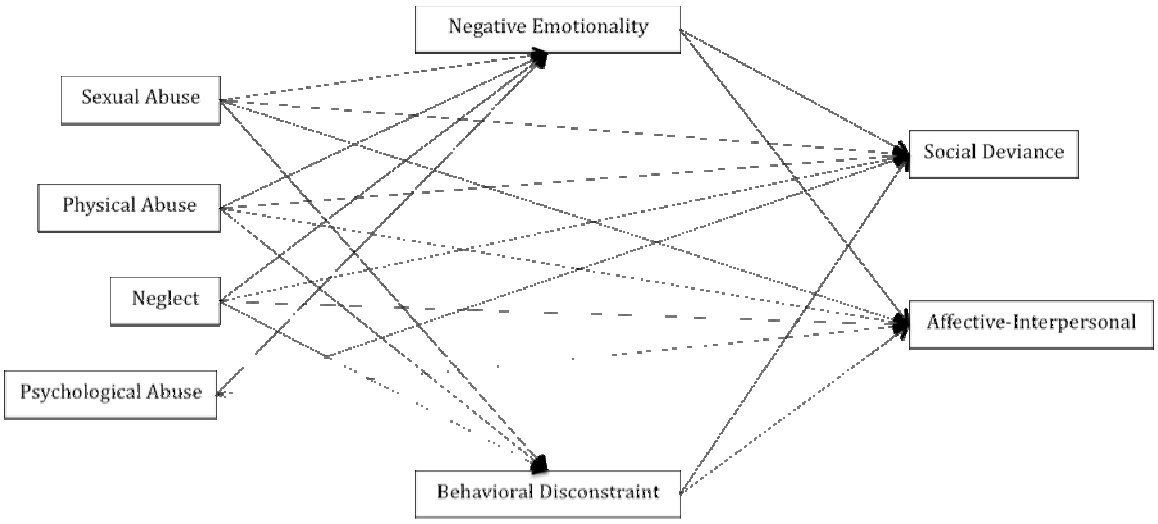
Data Analysis Plan

I first conducted correlation analyses to examine the zero-order associations between the psychopathy, maltreatment, and personality (negative emotionality and behavioral disconstraint) measures. From these data, I determined if significant relationships exist between the variables, and the relative strengths of each parameter at the zero-order level.

Next, path analyses were used to examine the mediation models (see Figure 1)

Figure 1.

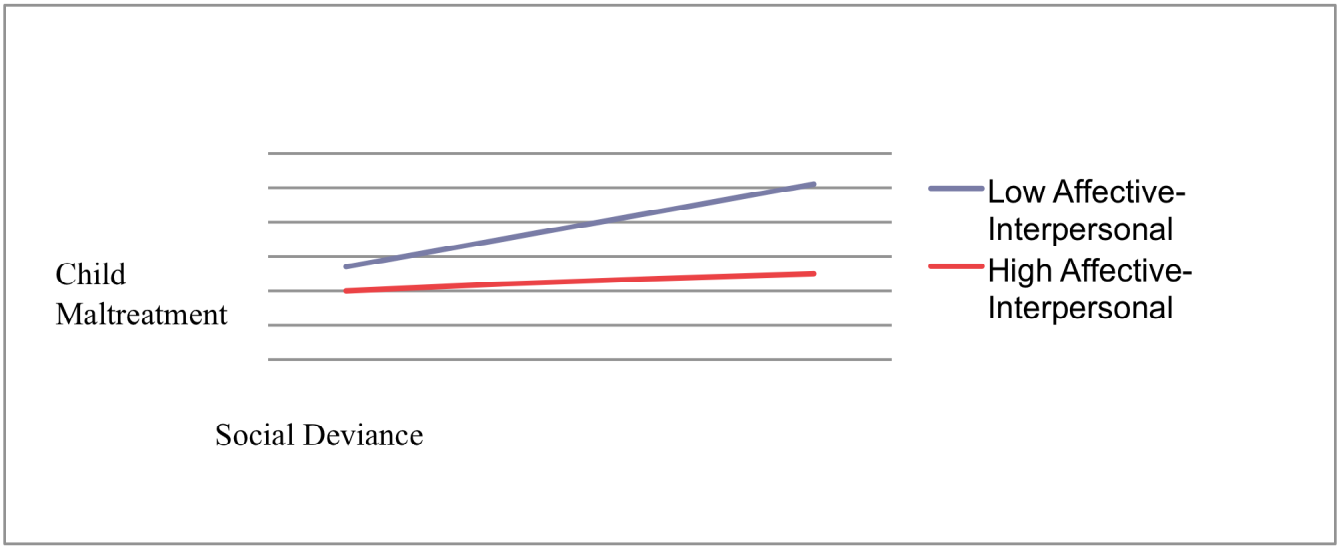
Mediation Model.



and moderation models (see Figure 2).

Figure 2.

Moderation Example.



Bootstrapping was used to estimate all parameters, because rescaling the chi square statistic for improved model fit would not be an issue in these models (as many of them are fully saturated), and this method allows for better testing of indirect effects (see Preacher & Hayes, 2004). All indirect (i.e., mediation) effects were tested using bootstrapping to generate standard errors of the indirect parameter (maltreatment to psychopathy via negative emotionality or behavioral disconstraint) to account for possible asymmetries in data (Preacher & Hayes, 2004). These analyses were repeated using specific negative emotions (e.g., anger, fear, anxiety) as mediators. Gender differences were tested for both mediation models by comparing two models- one in which parameters were freely estimated across both genders to a more restricted model in which parameters were set to be equal across genders. A chi square likelihood ratio test was conducted to determine whether the more restricted model is significantly different from the less restrictive model. Finally, affective-interpersonal traits were examined as a

potential moderator using the same multiple-group procedure as just described for gender. Affective-Interpersonal traits were arbitrarily divided into high vs. low using a median split.

I conducted six path analyses all together. The first analysis included a mediation model, in which behavioral disconstraint and negative emotionality served as mediators between the four childhood maltreatment (sexual abuse, physical abuse, psychological abuse, and neglect) predictor variables and two psychopathy facets of affective-interpersonal and social deviance (Model 1). For the second path analysis, behavioral disconstraint and specific facets of negative emotionality (i.e., anger, fear, and anxiety) served as mediators between the four predictors of childhood maltreatment and the two facets of psychopathy (Model 2). I next examined whether gender would be a significant moderator on any of the significant direct and indirect paths in the first two models. The third model was a moderated mediation model, in which gender served as the moderator. Behavioral disconstraint and negative emotionality served as mediators between the four predictors of childhood maltreatment and the two facets of psychopathy (Model 3). The fourth path analysis was a moderated mediation model, in which gender again served as the moderator. Behavioral disconstraint, anger, anxiety, and fear served as mediators between the four predictors of childhood maltreatment and the two facets of psychopathy (Model 4). The fifth path analysis was a moderated mediation model, in which the affective-interpersonal psychopathy traits served as the moderator. More specifically, I used a median split to divide affective-interpersonal scores into a "high" and a "low" group so that a multigroup path model could be estimated. Behavioral disconstraint and negative emotionality served as mediators between the four predictors of childhood

maltreatment and the social deviance traits of psychopathy (Model 5). The final path analysis was also a moderated mediation model, in which the affective-interpersonal psychopathy traits served as the moderator. The same "high" and "low" groups were used. Behavioral disconstraint, anger, anxiety, and fear served as mediators between the four predictors of childhood maltreatment and the social deviance traits of psychopathy (Model 6).

CHAPTER 3

RESULTS

Descriptive Statistics

The results of basic descriptive statistic analyses showed that most of the variables were generally normally distributed. Table 1 shows the means, standard deviations, range, skewness, and kurtosis, and internal consistency reliability estimates for all variables considered in this study. Sexual abuse, however, was positively skewed and severely kurtotic, and physical abuse, psychological abuse, and neglect, were also somewhat positively skewed. This was evidenced by their large deviance from the acceptable skewness level of +/-1. Because some of the variables deviated slightly from univariate normality, but others did not, we used the bootstrapping resampling technique to estimate the standard errors using the distributional properties observed in these data. Furthermore, bootstrapping is the best way to estimate standard errors associated with indirect effects (Preacher & Hayes, 2004).

Table 1.

Descriptive statistics of maltreatment variables, mediating variables, and psychopathy variables

Variable	Minimum	Maximum	Mean	SD	Skewness	Kurtosis	Cronbach's alpha
Sexual Abuse	2	23	6.88	2.30	3.26	12.59	.77
Physical Abuse	6	47	19.22	5.28	1.48	3.47	.78
Psychological Abuse	2	40	16.19	5.57	1.04	1.25	.86
Neglect	6	57	24.13	8.75	1.02	0.92	.87
Anxiety	0	12	4.71	2.79	0.341	-0.60	.74
Anger Proneness	0	7	2.87	2.02	0.28	-0.90	.71
Fear	0	14	4.60	3.05	0.48	-0.50	.66
Disconstraint	0	18	7.52	3.63	0.28	-0.32	.76
Neuroticism/ Negative Emotionality	0	19	8.49	3.97	0.022	-0.70	.77
Affective-Interpersonal	20	139	74.61	16.72	0.02	0.142	.90
Social Deviance	17	156	66.95	16.16	0.38	0.90	.87

Correlations

I first calculated zero-order correlations among the maltreatment variables, the mediating variables of negative emotionality and behavioral disconstraint, and the psychopathy facet scores. Table 2 shows these correlations. There were small but significant

correlations between the maltreatment variables and both the mediating variables and the psychopathy scores. Both affective-interpersonal and social deviance factors were positively correlated with these variables, and Steiger's (1980) t-tests for dependent correlations revealed that their relative correlations with physical abuse (t = -0.43, p = 0.67), neglect (t = -0.59, p = .56), and psychological abuse (t = -0.16, p = .87) correlations were not significantly different. However, the correlation with sexual abuse (t = -3.95, p < .001) was significantly larger for the social deviance facet relative to the affective-interpersonal facet. Moreover, there were small positive correlations between negative emotionality (including anxiety, anger, and fear) and the psychopathy scores. There were moderate to strong correlations between behavioral disconstraint and the two psychopathy scores.

Table 2.

Correlations among the maltreatment variables, mediating variables, and psychopathy scores

Variable	Sexual Abuse	Physical Abuse	Psychological Abuse	Neglect	Anxiety	Anger Proneness	Fear	Disconstraint	Neuroticism/ Negative Emotionality	Affective-Interpersonal	Social Deviance
Sexual Abuse	-	-	-	-	-	-	-	-	-	-	-
Physical Abuse	.452*	-	-	-	-	-	-	-	-	-	-
Psychological Abuse	.353*	.712*	-	-	-	-	-	-	-	-	-
Neglect	.439*	.630*	.802*	-	-	-	-	-	-	-	-
Anxiety	.174*	.195*	.274*	.299*	-	-	-	-	-	-	-
Anger Proneness	.048	.125*	.178*	.177*	.531*	-	-	-	-	-	-

Fear	.183*	.131*	.120*	.116*	.409*	.308*	-	-	-	-	-
Disconstraint	.136*	.200*	.173*	.181*	.176*	.238*	-.016	-	-	-	-
Neuroticism/ Negative Emotionality	.121*	.165*	.258*	.282*	.849*	.698*	.397 *	.167*	-	-	-
Affective-Interpersonal	.147*	.217*	.189*	.199*	.120*	.255*	-.007	.507*	.142*	-	-
Social Deviance	.247*	.228*	.193*	.214*	.153*	.263*	.064	.683*	.158*	.738*	-

Note. *$p < .01$

Path Analyses

Basic mediation model

Model 1(see figure 3) included a mediation model in which behavioral disconstraint and negative emotionality served as mediators between the four childhood maltreatment (sexual abuse, physical abuse, psychological abuse, and neglect) predictor variables and two psychopathy facets of affective-interpersonal and social deviance.

The original model fit was a fully saturated (just-identified) model and the resulting model fit was therefore perfect, χ^2 (2, N = 763) = 0.00, p = 1.0, CFI = 1.00, TLI = 1.0, RMSEA = .00 (C.I. 0.0 – 0.0), SRMR = 0.00. I next "pruned" this model by removing non-significant paths, one at a time, and subsequently estimating model fit each step. I discontinued this process either when the model evidenced a statistically significant decrement in fit (based on a chi-square difference test) or all of the remaining parameters were significant. The final model contained only statistically significant parameters, and the model fit remained unchanged, $\Delta\chi^2$ (7, N = 769) = 6.78, p = 0.45.

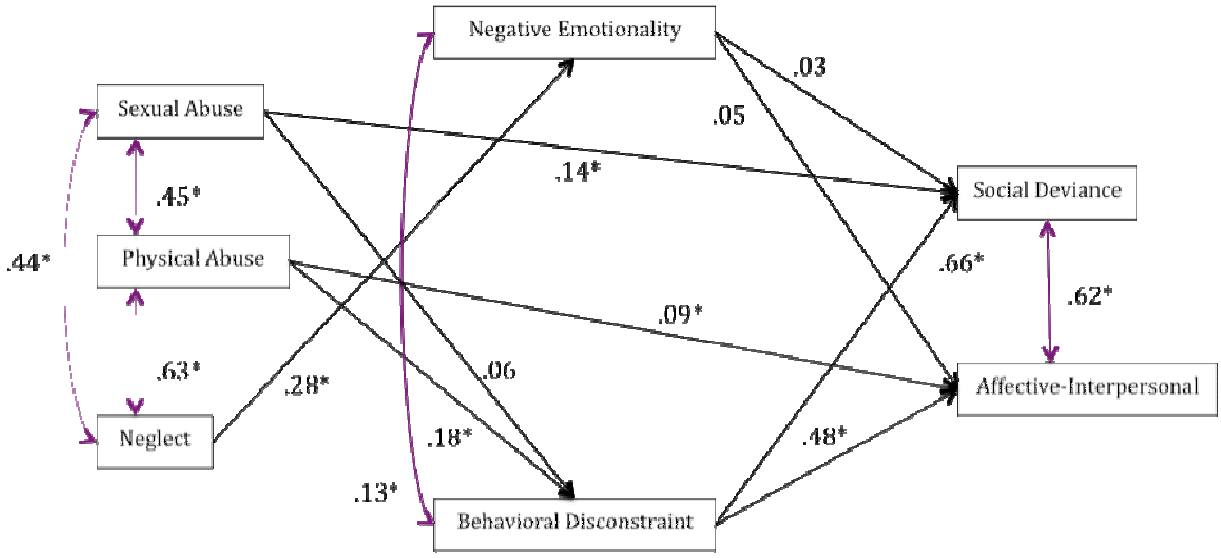
In the final version of Model 1, the results indicated that sexual abuse contributed significantly to the prediction of the social deviance facet of psychopathy (β = .14, p < .001). Physical abuse contributed significantly to the affective-interpersonal traits of psychopathy (β = .09, p = .001). Neglect (β = .28, p < .001) contributed significantly to negative emotionality. The results also showed that behavioral disconstraint strongly predicted both the social deviance traits (β = .66, p < .001), and the affective-interpersonal traits of psychopathy (β = .48, p < .001). Physical abuse contributed significantly to the prediction of behavioral disconstraint (β = .18, p < .001).

An examination of the indirect effects revealed that the indirect effect of physical

abuse through behavioral disconstraint predicting both affective interpersonal (β = .06, *p* = .01) and social deviance (β = .08, *p* = .01) traits of psychopathy were significant.

Figure 3.

Path Analysis 1 – Final Model



Note. * $p < .01$

Mediation model with specific negative emotions

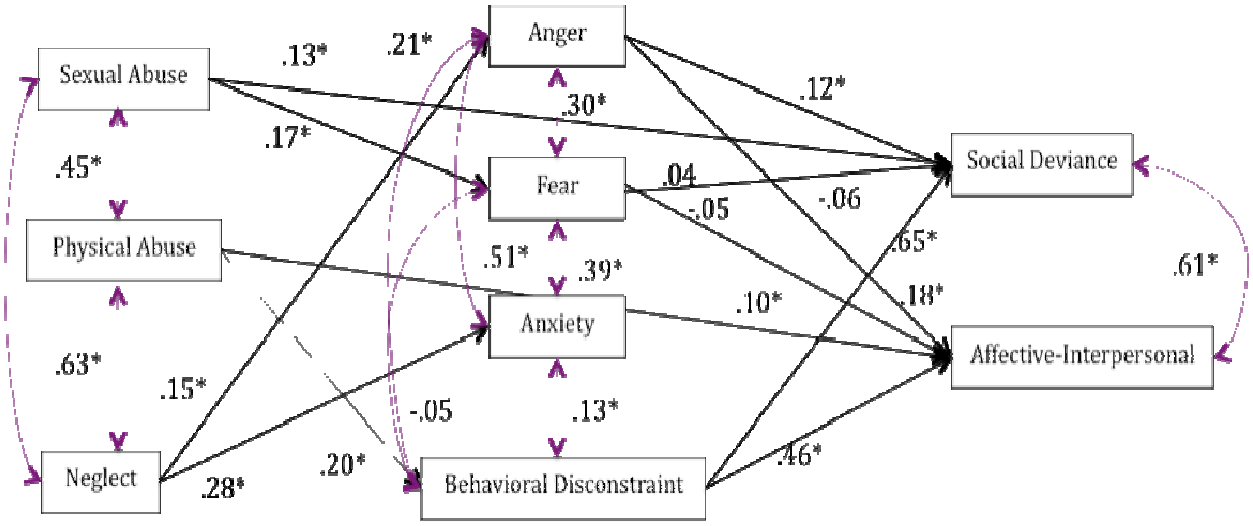
For Model 2 (see figure 4), behavioral disconstraint and specific facets of negative emotionality (i.e., anger, fear, and anxiety) served as mediators between the four predictors of childhood maltreatment and the two facets of psychopathy. Again, the initial baseline model was fully saturated and just identified. As a result, the model fit was perfect, χ^2 (2, *N* = 763) = 0.0, *p* = 1.00, CFI = 1.00, TLI = 1.0, RMSEA = .00 (C.I. 0.0 – 0.0), SRMR = 0.00. I used the same "pruning" procedure as with Model 1, and discontinued this process when all of the remaining parameters were significant. The final model fit was unchanged, $\Delta\chi^2$ (12, *N* = 769) = 20.16, *p* = 0.06.

In terms of direct effects, the results indicated that sexual abuse contributed significantly to the prediction of the social deviance psychopathy facet (β = .13, p < .001), whereas physical abuse contributed significantly to the prediction of the affective-interpersonal facet of psychopathy (β = .10, p < .01). Many of the mediators significantly predicted both psychopathy facets. For example, behavioral disconstraint significantly predicted both the affective-interpersonal facet (β = .46, p < .001), and the social deviance facet (β = .65, p < .001). Anger contributed significantly to both the affective-interpersonal facet (β = .18, p < .001), and the social deviance facet (β = .12, p < .001). Physical abuse contributed significantly to the prediction of behavioral disconstraint (β = .20, p < .001, whereas sexual abuse contributed to predicting fear (β = .17, p < .001). Neglect significantly predicted both anger (β = .15, p < .001) and anxiety (β = .28, p < .001).

Analyses of the indirect effects showed that the effect of physical abuse was mediated by behavioral disconstraint, which was significantly associated with both the affective-interpersonal facet of psychopathy (β = .09, p < .001) and the social deviance traits of psychopathy (β = .13, p < .001). The indirect effects of neglect through anger on both the affective-interpersonal (β = .03, p = .002) and the social deviance (β = .02, p = .006) psychopathy traits were significant.

Figure 4.

Path Analysis 2 – Final Model



Note. * $p < .01$

Gender moderated mediation model

Model 3 (see figure 5) examined whether gender would moderate any of the significant direct or indirect associations derived in Model 1. Behavioral disconstraint and negative emotionality served as mediators between the four predictors of childhood maltreatment and the two facets of psychopathy. Because gender is a categorical moderator variable, multigroup path analysis was conducted to test for moderation effects.

The baseline model in which all paths were freely estimated across the male and female groups had adequate model fit, χ^2 (14, N = 768) = 33.13, p = .003, CFI = 0.98, TLI = 0.96, RMSEA = 0.06 (C.I. 0.03 – 0.09, SRMR = 0.04. I constrained the parameters in both groups to be equal, and conducted a chi-square difference test, which revealed that the restricted model had significantly worse fit than the baseline model, $\Delta\chi^2$ (11, N = 768) = 34.43, p = 0.003. Modification indices were used to determine which paths should be freely estimated across groups to maximize the improvement in model fit

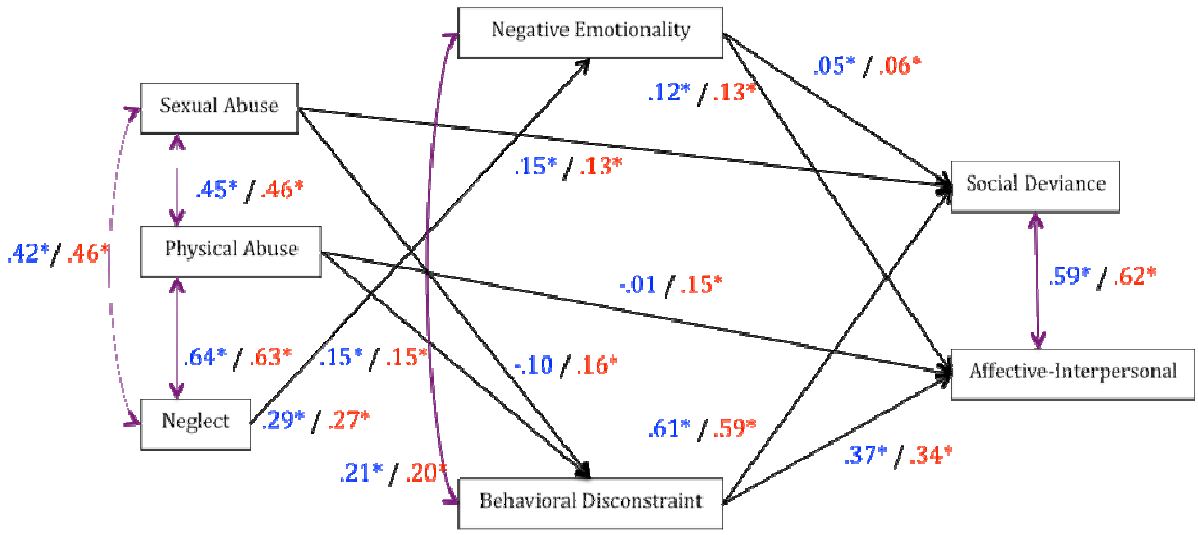
in the constrained model. These parameters, one at the time, were then permitted to vary freely across the genders until the final model was no longer significantly different from the model in which the parameters were freely estimated. The final model was not significantly different in terms of model fit relative to the baseline model, $\Delta\chi 2$ (9, N = 768) = 13.55, p = 0.14.

The results of the moderated mediation analyses revealed that gender significantly moderated the direct association between physical abuse and the affective-interpersonal facet of psychopathy. Specifically, women (β = .15, p < .001) who scored high on physical abuse were more likely than men (β = -.01, p = .84) to have higher scores on the affective-interpersonal psychopathy traits. Moreover, women (β = .16, p = .002) who scored high on sexual abuse were more likely than men (β = -.10, p = .07) to have higher scores on behavioral disconstraint.

In terms of indirect effects, gender significantly moderated the mediating relationship of sexual abuse with the affective-interpersonal psychopathy traits via behavioral disconstraint. Specifically, this indirect relationship was significant for women (β = .05, p = .004), but not for men (β = -.04 p > .05). Gender also significantly moderated the mediating relationship of sexual abuse with the social deviance psychopathy traits via behavioral disconstraint. Again, this indirect relationship was significant for women (β = .09, p = .002), but not for men (β = -.06, p > .05).

Figure 5.

Path Analysis 3 – Final Model



Note. Men = blue; Women = red. * $p < .01$

Gender moderated mediation model with specific negative emotions

Model 4 (see figure 6) examined whether gender would moderate any of the significant direct or indirect associations Model 2. Behavioral disconstraint, anger, anxiety, and fear served as mediators between the four predictors of childhood maltreatment and the two psychopathy facets. Again, because gender is a categorical moderator variable, multigroup path analysis was conducted to test for moderation.

The baseline model in which all paths were freely estimated across men and women had an adequate model fit, $\chi 2$ (24, N = 768) = 63.96, $p < .001$, CFI = 0.95, TLI = 0.92, RMSEA = 0.07 (C.I. 0.06 – 0.09), SRMR = 0.07. I constrained the parameters in both groups to be equal, and conducted a chi-square difference test, which indicated that the restricted model had significantly worse fit than the baseline model, $\Delta\chi 2$ (38, N = 768) = 47.89, $p < 0.001$. Based on suggestions from the modification indices, I determined which paths should be freely estimated across groups to maximize the improvement in model fit in the constrained model. I then allowed these parameters to vary feely across

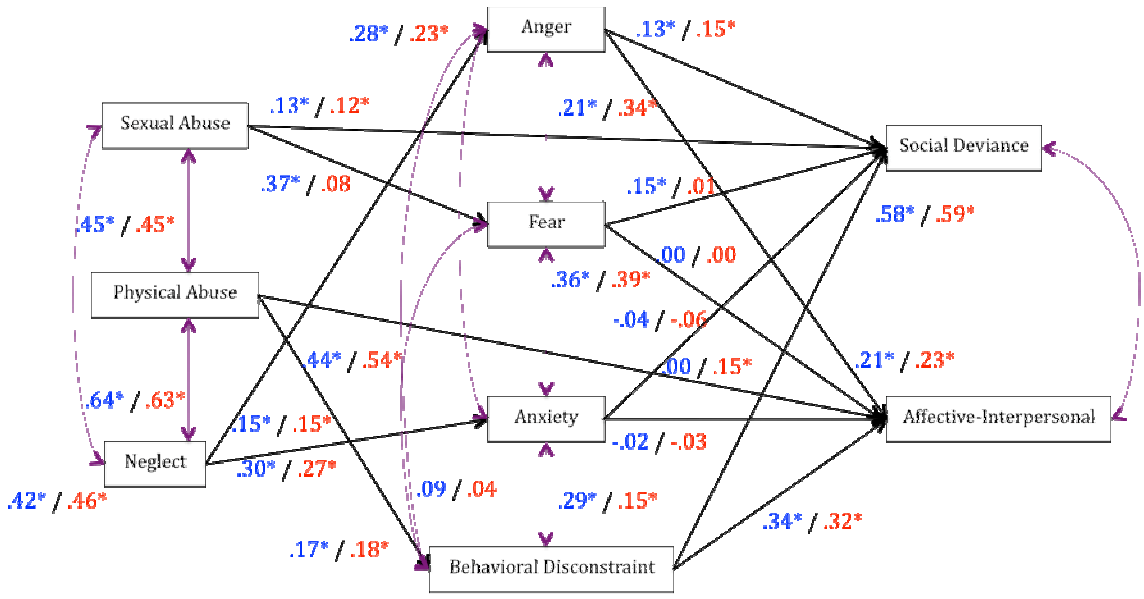
the genders one at a time, until the final model was no longer significantly different from the model in which the parameters were freely estimated. The final model was not significantly different in terms of model fit compared to the baseline model, $\Delta\chi^2$ (11, N = 768) = 16.26, p = .13.

The results of the moderated mediation analyses revealed several significant findings for direct paths. Gender significantly moderated the relationship between physical abuse and the affective-interpersonal traits of psychopathy, in that women (β = .15, p < .001) who scored higher on physical abuse were more like than men (β = .00, p = .94) to also have higher scores on the affective-interpersonal traits of psychopathy. Gender also significantly moderated the relationship between fear and the social deviance traits of psychopathy. Men (β = .15, p < .001) with higher scores on fearfulness were significantly more likely than women (β = .01, p = .77) to have higher scores on the social deviance traits of psychopathy. Gender also significantly moderated the relationship between sexual abuse and fear, in that men (β = .37, p < .001) who had high scores on sexual abuse were significantly more likely than women (β = .08, p = .04) to have higher scores on fear.

In terms of indirect effects, gender also significantly moderated the mediating relationship of sexual abuse and the social deviance psychopathy traits via fear. Specifically, this indirect relationship was significant for men (β = .05, p = .009), but not for women (β = .00, p = .81).

Figure 6.

Path Analysis 4 – Final Model



Note. Men = blue; Women = red. * $p < .01$

Affective-interpersonal moderated mediation model

Model 5 (see figure 7) examined whether the affective-interpersonal psychopathy traits would moderate any associations between the four maltreatment predictors and the social deviance facet in Model 1. More specifically, I used a median split to divide affective-interpersonal scores into a "high" and a "low" group so that a multigroup path model could be estimated. Behavioral disconstraint and negative emotionality served as mediators between the four predictors of childhood maltreatment and the social deviance traits of psychopathy.

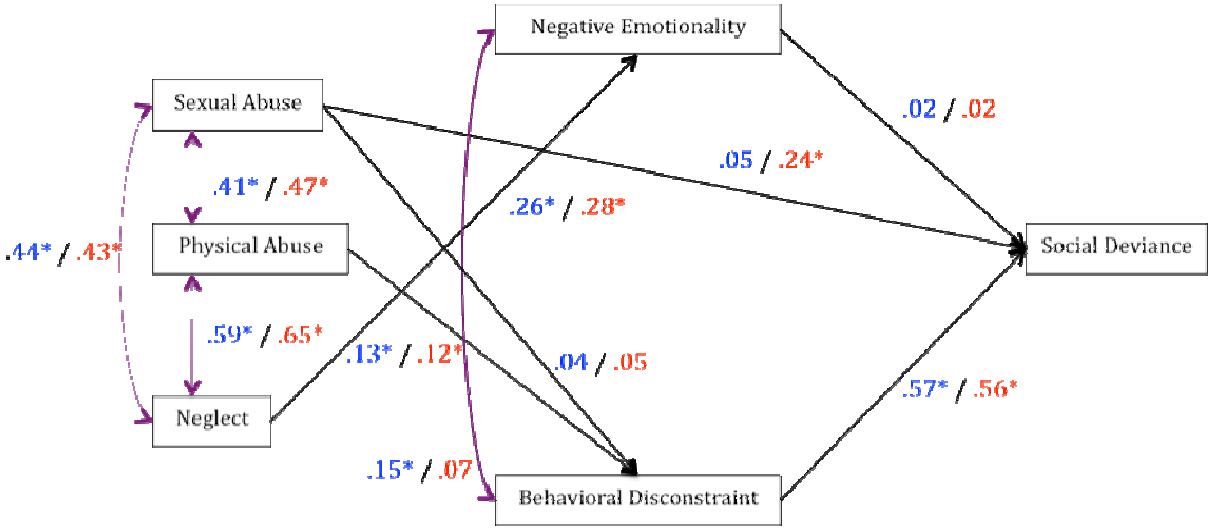
The baseline model in which all paths were freely estimated across the "high" and "low" groups had nearly perfect model fit, $\chi 2$ (10, N = 761) = 3.98, p = .95, CFI = 1.0, TLI = 1.03, RMSEA = 0.0 (C.I. 0.0 – 0.01), SRMR = 0.01. I constrained the parameters in both groups to be equal, and conducted a chi-square difference test, which indicated that the restricted model had significantly worse fit than the baseline model, $\Delta\chi 2$ (6, N = 768) = 14.78, p = 0.02. Using modification indices, I determined which paths should be

freely estimated across groups to maximize the improvement in model fit in the constrained model. These parameters, one at the time, were then permitted to vary freely across the two groups until the final model was no longer significantly different from the model in which the parameters were freely estimated. The final model was not significantly different in terms of model fit relative to the baseline model, $\Delta\chi 2$ (5, N = 761) = 6.50, p = 0.26.

The results of the moderated mediation analyses revealed that the affective-interpersonal psychopathy traits significantly moderated the relationship between sexual abuse and the social deviance facet of psychopathy. Individuals who were high on the affective-interpersonal facet (β = .24, p < .001) with higher scores on sexual abuse were significantly more likely than those who were low on the affective-interpersonal facet (β = .05, p = 0.198) to have higher scores on the social deviance facet.

Figure 7.

Path Analysis 5 – Final Model



Note. Low on AI = blue; High on AI = red. * p < .01

Affective-interpersonal moderated mediation model with specific negative emotions

Model 6 (see figure 8) examined whether the affective-interpersonal psychopathy traits would moderate any associations between the four maltreatment predictors and the social deviance facet in Model 2. Behavioral disconstraint, anger, anxiety, and fear served as the mediators between the four predictors of childhood maltreatment and the social deviance traits of psychopathy.

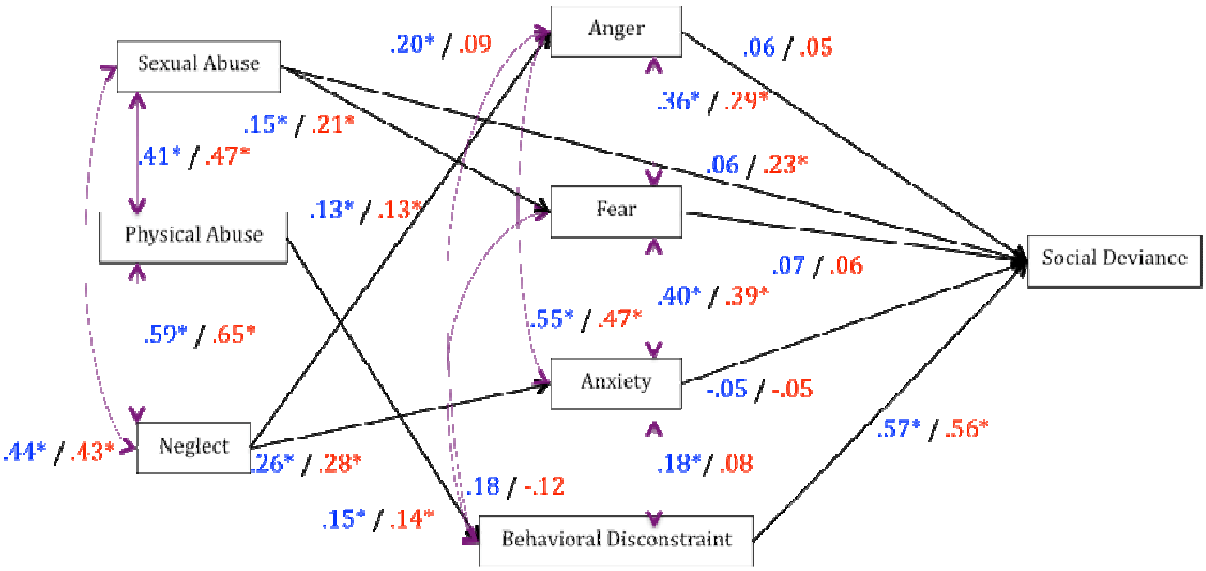
The baseline model in which all paths were freely estimated across the "high" and "low" groups had adequate model fit, $\chi 2$ (20, N = 761) = 31.37, p = .05, CFI = 0.99, TLI = 0.97, RMSEA = 0.04 (C.I. 0.0 – 0.06), SRMR = 0.02. I constrained the parameters in the two groups to be equal, and conducted a chi-square difference test, which revealed that the restricted model had significantly worse fit than the baseline model, $\Delta\chi 2$ (9, N = 761) = 19.67, p = .02. Modification indices were used to determine which paths should be freely estimated across groups to maximize the improvement in model fit in the constrained model. These parameters, one at the time, were then permitted to vary freely across both groups until the final model was no longer significantly different from the model in which the parameters were freely estimated. The final model was not significantly different in terms of model fit relative to the baseline model, $\Delta\chi 2$ (8, N = 761) = 12.78, p = 0.12.

The results of the moderated mediation analyses revealed that the affective interpersonal facet of psychopathy again significantly moderated the relationship between sexual abuse and the social deviance facet of psychopathy. Individuals who were high on the affective-interpersonal facet (β = .23, p < .001) with higher scores on sexual abuse

were significantly more likely than those who were low on the affective-interpersonal facet (β = .06, p = 0.16) to have higher scores on the social deviance facet.

Figure 8.

Path Analysis 6 – Final Model



Note. Low on AI = blue; High on AI = red. * p < .01

CHAPTER 4

DISCUSSION

The aim of the current study was to determine the direct and indirect associations between adult psychopathy and childhood maltreatment. There were three primary goals associated with the study. The first was to examine the direct and indirect associations between childhood maltreatment and adult psychopathy, via negative emotionality and behavioral disconstraint. The second goal was to determine if the affective-interpersonal facet moderated the relationship between childhood maltreatment and the social deviance facet. The final goal was to determine if gender moderated the direct and indirect associations between adult psychopathy and childhood maltreatment. These findings indicate that sexual abuse, physical abuse, and neglect all predict psychopathy either directly or via negative emotionality and/or behavioral disconstraint; however, my findings did not associate psychological abuse with psychopathy. The childhood maltreatment predictor variables significantly predicted both psychopathy facets, directly and indirectly via negative emotionality and behavioral disconstraint. Significant moderation effects were identified for both gender and the affective-interpersonal facet on these associations. These will be elaborated upon below.

Summary of findings and theoretical implications

The first goal of the current study was to replicate and extend Verona et al.'s (2005) findings that negative emotionality and behavioral disconstraint would mediate

the relationship between physical abuse and psychopathy, and that sexual abuse would predict psychopathy directly. As hypothesized, sexual abuse directly significantly predicted the social deviance facet of psychopathy, and physical abuse predicted both facets via behavioral disconstraint. Unexpectedly, physical abuse also significantly contributed directly to the affective-interpersonal facet. Because previous findings do not support this relationship (Verona et al., 2005; Poythress et al., 2006), alternate explanations must be considered. One possibility is that individuals who are physically abused choose to disaffiliate and become emotionally distant from others, and in doing so, they become more callous and less empathic.

I also hypothesized that neglect would directly predict psychopathy, as they have been associated in previous studies (e.g., Bernstein, Stein, & Handelsman, 1988; Farrington, 2006; Graham, Kimonis, Wasserman, & Kline, 201l), which was disconfirmed. I did not, however, hypothesize that neglect would indirectly predict both psychopathy facets via anger. Shipman, Edwards, Browns, Swisher, and Jennings (2005) found that neglected children were likely to have higher rates of negative emotions (including anger) coupled with lower levels of empathy compared to children who were not neglected. This lends support to my indirect finding of neglect predicting the affective-interpersonal facet via anger. Furthermore, studies have found that neglected children are also at-risk for behavioral problems (e.g., Erickson & Egeland, 1996; Erickson et al., 1989), which explains the association between neglect and the social deviance facet. Thus, the neglect and general psychopathy association can best be understood from a developmental process that involves a personality proclivity to experience angry emotions partially as a result from childhood neglect. Finally, in line

with our hypotheses, psychological abuse did not contribute to the prediction of psychopathy neither directly nor indirectly, which was expected as psychological abuse has previously been found to be uncorrelated with externalizing and antisocial behaviors (Egeland, Yates, Appleyard, & van Dulmen, 2002) and psychopathy (Graham et al., 2011).

In consideration of the mediating personality trait variables, the findings suggest that behavioral disconstraint is the more predominant mediator compared to negative emotionality as a unit. Behavioral disconstraint mediated the relationship between physical abuse and both facets of psychopathy, as well as sexual abuse and both facets of psychopathy in women. In conjunction with the moderate to strong correlations between behavioral disconstraint and both psychopathy facets, these results suggest that behavioral disconstraint is a more important personality trait relative to negative emotionality in the conceptual framework of psychopathy. This is evident both when examining the associations between childhood maltreatment and psychopathy via behavioral disconstraint and negative emotionality, and when investigating the direct relationships between the mediating variables and the psychopathy facets. These findings are further consistent with research in the broader psychopathology literature that has indicated that general externalizing problems share a common genetic liability factor that explains over 80% of the shared variance (Krueger et al., 2002; Kendler et al., 2003, 2011), with the personality disinhibition domain representing the behavioral substrate (e.g., Krueger et al., 2001).

One innovative aspect of the current investigation is the aim to determine if specific negative emotions mediated the relationship between childhood maltreatment

and psychopathy to further elucidate the role of negative emotionality in understanding psychopathy. Anger and fear both significantly contributed to the prediction of psychopathy, but anxiety did not. Anger mediated the relationship between neglect and both psychopathy facets, whereas fear mediated the relationship between sexual abuse and the social deviance facet for men. This is particularly noteworthy since negative emotionality as a unit did not significantly predict either facet of psychopathy. It is possible that the saturation of anxiety in the negative emotionality measurement is the reason why negative emotionality as a unit did not contribute to the prediction of psychopathy, as anxiety itself did not predict either facet. Though the relationship between psychopathy and anxiety is controversial (e.g. Frick, Lilienfeld, Ellis, & Silverthorn, 1999), previous findings on psychopathy suggest that the affective-interpersonal facet is inversely related to anxiety (e.g. Harpur et al., 1989), though some researchers believe that the social deviance facet is related to high levels of anxiety (e.g., Levenson, Kiehl, & Fitzpatrick, 1995). Anxiety was inversely associated with the affective-interpersonal facet in this study, though it was not significant. Although also not significant, anxiety inversely contributed to the social deviance facet. The results from the current study indicate that anxiety does not serve a major role in understanding the development of psychopathic personality traits, at least with respect to childhood maltreatment.

The second goal was to determine if the affective-interpersonal psychopathy facet moderated any of the above-mentioned direct and indirect associations. The results indicated that the direct association between sexual abuse and social deviance traits was significantly stronger for those individuals high on affective-interpersonal traits relative

to those who were low, which was opposite of what I had hypothesized. This finding was unanticipated because child abuse victims who are traumatized typically have hyperactive amygdalas (e.g., Armony, Corbo, & Clement, 2005; Bryant et al., 2008; Rauch et al., 2000), whereas those high on affective-interpersonal traits have shown hypoactive amygdala activation (e.g., Blair, 2007; Blair, 2008). It was expected that characteristics of the affective-interpersonal facet (such as callousness and grandiosity) would serve as a protective mechanism against the effects of maltreatment. Although this was an unexpected finding, there are some possible reasons as to why this occurred. In examining the correlations between the affective-interpersonal facet and the negative emotionality measures, the association between the affective-interpersonal facet and fear was not statistically significant, indicating no relationship between these variables. A primary result of a hypoactive amygdala is reduced fear conditioning (which translates into a fearless temperament)(Yang, Raine, & Narr, 2006). Thus, it is possible that the affective-interpersonal facet as measured in the current study is not associated with a lack of fear, particularly in this sample. Further, there was an unusually strong correlation between the affective-interpersonal and social deviance facets, which suggests that most of the variance in the affective-interpersonal facet is that which overlaps with the social deviance facet. These findings may be due in part to range restriction on some of the features normally found to be unique to the affective-interpersonal facet, such as fearlessness, callousness, and a lack of empathy, in a college student sample. It is also possible that these individuals might exhibit social deviance traits that did not result from childhood maltreatment. Of course, future research needs to replicate these findings in other samples.

The third goal was to determine if gender moderated any of the direct and indirect associations between adult psychopathy and childhood maltreatment. No hypotheses were stated, because there is no literature on this topic to guide this research question. Childhood maltreatment contributed to significantly stronger associations with the psychopathy facets for women than for men in all but one of the analyses. The lone exception was when fear mediated the association between sexual abuse and the social deviance facet, which was stronger in men than women. Previous research has also linked the association between childhood maltreatment and social deviance in women (Verona et al., 2005; Blonigen, Sullivan, Hicks, & Patrick, 2012). In accordance with those findings, in my sample, the mediation relationship between child sexual abuse, behavioral disconstraint, and social deviance was stronger for female victims of sexual abuse than male victims. Although Blonigen et al. (2012) found no link between childhood maltreatment and affective-interpersonal traits, I found that women who scored high on physical abuse were more likely than men to also have higher scores on the affective-interpersonal facet. Further, the association between sexual abuse and affective-interpersonal traits was stronger for women than men when mediated by behavioral disconstraint. The results of my study suggest that childhood maltreatment might be a particular deleterious risk factor for women than for men in the development of psychopathic traits.

Previous studies have examined the association between childhood abuse and Antisocial Personality Disorder (ASD; White & Widom, 2003). ASD is considered a less extreme form of psychopathy that consists mostly of traits (e.g., impulsivity, aggression, irresponsibility, failure to conform to social norms) captured within the social deviance

facet. Childhood abuse and neglect significantly predicted APD in men, but did not predict other externalizing behaviors. In women, childhood abuse and neglect significantly predicted APD and other forms of externalizing behaviors. Although McClellan, Farabee, and Crouch (1997) partly attribute these findings to the fact that girls experience more severe abuse than boys, and are more frequently sexually abused than boys, these results suggest that childhood abuse may contribute to greater amounts of externalizing maladaptive behavior in women relative to men (Verona & Vitale, 2006). Although these studies examined childhood maltreatment and APD, and not psychopathy, it is likely that these findings can at least partially explain the gender differences in the link between childhood maltreatment and psychopathy, and the social deviance facet in particular. □□

Another possible factor involved in the gender differences in these associations in Borderline Personality Disorder (BPD). BPD is a disorder characterized by instability in regard to self and interpersonal relationships, impulsivity, behavioral problems, and inappropriate anger. It is more common in women than men (DSM-IV-TR; APA, 2000), and some researchers have even suggested that BPD is the female version of Antisocial Personality Disorder (e.g., Lilienfeld, 1992;Verona & Vitale, 2006; Beauchaine, Klein, Crowell, Derbidge, & Gatzke-Kopp, 2009). Individuals with BPD frequently report histories of childhood sexual abuse and physical abuse (Zanarini, 2000).

From the perspective of multivariate liability models of psychopathology (e.g., Krueger & Markon, 2006), two general pathways appear particularly likely to understand the nexus of psychopathy, BPD, and childhood maltreatment. First, it is possible that psychopathy and maltreatment are unrelated, and their observed zero-order association is

primarily a reflection of an association between BPD and maltreatment. Indeed, Blonigen et al. (2012) found that BPD added a significant increase in predictive utility for both PTSD and potentially traumatic events over and above both the PCL-R factor scores and the four facet scores in a sample of female offenders. Further, the researchers suggested that BPD might fully account for the associations between the PCL-R Antisocial facet and PTSD. These results lend support to the notion of high comorbidity of PTSD and BPD in women (Johnson et al., 2003), and to the concept of BPD as a female version of psychopathy (e.g., Lilienfeld, 1992). Another possibility from a multivariate liability perspective is that childhood maltreatment may represent a causal mechanism for both psychopathy and BPD in women.

Although most the findings indicated that most effects were specific for women, I found that male victims of sexual abuse were more likely than women to be strongly associated with the social deviance facet when mediated by fear. The direct associations between sexual abuse and fear, and fear and the social deviance facet were stronger for men than women. Further, the indirect association between sexual abuse and the social deviance facet mediated by fear was also stronger for men than women. This was an unexpected finding because previous research found that the social deviance traits of psychopathy were unrelated to the processing of fear words in a sample of male undergraduates (Reidy, Zeichner, Hunnicutt-Ferguson, & Lilienfeld, 2008), and that women reported more negative emotions, especially fear, when exposed to aversive situations (Bradley, Codispoti, Sabatinelli, & Lang, 2001; Tobin, Graziano, Vanman, & Tassinary, 2000). One possible explanation is that sexual abuse simply lead to greater fear arousal in men than women, perhaps due to the alteration of the male self-schema

that he is supposed to be able to protect himself (and his family) from danger (Rader, 2010). These findings warrant further research in further delineating the role of gender in the direct and indirect associations between childhood maltreatment and psychopathy. In addition, an examination of the association between childhood maltreatment and adult psychopathy via BPD might help researchers to better understand the role of child maltreatment and its association with psychopathy.

Although this study has mostly conceptual implications, it is important to consider the practical implications of the study's findings. While childhood maltreatment is associated with many other mental health disorders, both internalizing and externalizing (e.g. Talbot et al., 2000; Techachasen & Kolkijoven, 2001), this study elaborates on prior research suggesting that childhood maltreatment contributes to the prediction of psychopathy (e.g. Weiler & Widom, 1996). The results of this study may help scholars to better understand the potential developmental pathways that lead to psychopathy. This knowledge could help benefit the treatment of individuals with psychopathy because it helps researchers to more fully comprehend the etiology of psychopathy.

Strengths, Limitations and Future Directions

There are several strengths associated with the current study. First, it is the first study to examine the associations between childhood maltreatment and psychopathy via the specific emotions of anger, anxiety, and fear. Previous studies had only investigated negative emotionality as a whole, and while I included the broad construct of negative emotionality, I also determined the roles of the specific emotions, which further elucidated the role of negative emotionality in the relation to psychopathy. A second strength is that this is the first study in which gender differences for the direct and

indirect relationships between childhood maltreatment and psychopathy were examined. A third strength is the inclusion of psychological abuse and neglect as possible childhood maltreatment predictor variables. Previous studies of this nature have primarily only considered physical and sexual abuse.

There are also several limitations associated with this study in light of which the conclusions most be considered. First, the sample only consisted of college students, which introduces the problem of range restriction, in that this population likely only endorsed a small range of childhood maltreatment and psychopathy. Future studies should examine these research questions in other populations, particularly prisoners, as there is likely a greater range of maltreatment and psychopathy in those individuals. A second limitation is the challenge of shared method variance, as all of the included measures were self-reports, and it is probable that some of the correlations among the variables are inflated due to this method artifact. Future studies should replicate and extend these findings using different measurement modalities of child maltreatment, temperament, and psychopathy. A third limitation is that the child maltreatment variables represent retrospective data, and thus, the accuracy associated with these scores may be poor for some individuals; this introduces further measurement error into the analyses and attenuates effect size magnitudes. A fourth limitation is that the duration of time since the abuse occurred is unknown. There may be differences in the short-term and long-term effects associated with maltreatment that could influence both the association with personality development and psychopathy. Longitudinal studies would be useful to address both the problem associated with retrospective data, and the issues that arise from short-term versus long-term effects of childhood abuse. A fifth limitation is that the

current study did not include a measure of socioeconomic status. Poverty likely accounted for some of the variance associated with psychopathy, since affective-interpersonal traits are positively correlated with socioeconomic status and verbal intelligence, and social deviance traits are negatively correlated with these variables (Harpur et al., 1989; Patrick et al., 1997). A final limitation is that the items on the CATS capture childhood maltreatment more so than childhood trauma. Future studies would benefit from determining the degree to which maltreatment is considered traumatic, as more severe levels of trauma might be more strongly associated with both personality and psychopathy.

More broadly, future research studies of this nature should continue to examine gender differences in the association between childhood maltreatment and adult psychopathy in various settings, such as prisons and the community to learn more about how psychopathy manifests differently across the two genders as well as whether differential liabilities are involved. Furthermore, a longitudinal research program on the development of psychopathy as a result of childhood maltreatment and other psychosocial risk factors is indicated to better elucidate these associations from a developmental psychopathology perspective.

REFERENCES

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders*, (Revised 4th ed.). Washington, DC: Author.

Armony, J. L., Corbo, V., Clément, M., & Brunei, A. (2005). Amygdala response in patients with acute PTSD to masked and unmasked emotional facial expressions. *The American Journal Of Psychiatry*, *162*, 1961-1963. doi:10.1176/appi.ajp.162.10.1961

Beauchaine, T. P., Klein, D. N., Crowell, S. E., Derbidge, C., & Gatzke-Kopp, L. (2009). Multifinality in the development of personality disorders: A biology × sex × environment interaction model of antisocial and borderline traits. Development And Psychopathology, *21*, 735-770. doi:10.1017/S0954579409000418

Bernstein, D. P., Stein, J. A., & Handelsman, L. (1998). Predicting personality pathology among adult patients with substance use disorders: Effects of childhood maltreatment. *Addictive Behaviors*, *23*, 855-868. doi:10.1016/S0306-4603(98)00072-0

Berton, M., & Stabb, S. D. (1996). Exposure to violence and post-traumatic stress disorder in urban adolescents. *Adolescence*, *31*, 489-498.

Blair, R. J. R. (2007). The amygdala and ventromedial prefrontal cortex in morality and psychopathy. *Trends in Cognitive Sciences*, *11*, 387-392. doi:10.1016/j.tics.2007.07.003

Blair, R. J. R. (2008). The amygdala and ventromedial prefrontal cortex: functional contributions and dysfunction in psychopathy. *Philosophical Transactions of the Royal Society B*, *363*, 2557-2565. [special issue] doi: 10.1098/rstb.2008.0027

Blair, R. R., Peschardt, K. S., Budhani, S. S., Mitchell, D. V., & Pine, D. S. (2006). The development of psychopathy. *Journal Of Child Psychology And Psychiatry*, *47*, 262-275. doi:10.1111/j.1469-7610.2006.01596.x

Blonigen, D. M., Carlson, M. D., Hicks, B. M., Krueger, R. F., & Iacono, W. G. (2008). Stability and change in personality traits from late adolescence to early adulthood: A longitudinal twin study. *Journal Of Personality*, *76*, 229-266. doi:10.1111/j.1467-6494.2007.00485.x

Blonigen, D. M., Carlson, S. R., Krueger, R. F., & Patrick, C. J. (2003). A twin study of self-reported psychopathic personality traits. *Personality And Individual Differences*, *35*, 179-197. doi:10.1016/S0191-

8869(02)00184-8

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: A Journal Of Research In Psychiatry And The Allied Sciences, 35*, 637-648.

Blonigen, D.M., Sullivan, E.A., Hicks, B.M., & Patrick, C.J. (2012). Facets of psychopathy in relation to potentially traumatic events and posttraumatic stress disorder among female prisoners: The mediating role of borderline personality disorder traits. *Personality Disorders: Theory, Research, and Treatment*, doi:10.1037/a0026184

Bolen, R. M. (2001). *Child sexual abuse: Its scope and our failure*. Dordrecht Netherlands: Kluwer Academic Publishers.

Bradley, M. M., Codispoti, M., Sabatinelli, D., & Lang, P. J. (2001). Emotion and motivation II: Sex differences in picture processing. *Emotion, 1*, 300-319. doi:10.1037/1528-3542.1.3.300

Brown, J., Cohen, P., Johnson, J. G., & Salzinger, S. (1998). A longitudinal analysis of risk factors for child maltreatment: Findings of a 17-year prospective study of officially recorded and self-reported child abuse and neglect. *Child Abuse & Neglect, 22*, 1065-1078. doi:10.1016/S0145-2134(98)00087-8

Bryant, R. A., Felmingham, K. K., Kemp, A. A., Das, P. P., Hughes, G. G., Peduto, A. A., & Williams, L. L. (2008). Amygdala and ventral anterior cingulate activation predicts treatment response to cognitive behaviour therapy for post-traumatic stress disorder. *Psychological Medicine: A Journal Of Research In Psychiatry And The Allied Sciences, 38*, 555-561. doi:10.1017/S0033291707002231

Chemtob, C. M., Novaco, R. W., Hamada, R. S., Gross, D. M., & Smith, G. (1997). Anger regulation deficits in combat-related posttraumatic stress disorder. *Journal Of Traumatic Stress, 10*, 17-36.doi:10.1023/A:1024852228908

Cima, M., Smeets, T., & Jelicic, M. (2008). Self-reported trauma, cortisol levels, and aggression in psychopathic and non-psychopathic prison inmates. *Biological Psychology, 78*, 75-86. doi:10.1016/j.biopsycho.2007.12.011

Cleckley, H. H. (1941). *The mask of sanity: An attempt to reinterpret the so-called psychopathic personality*. Oxford England: Mosby.

Constantine, L. L. (1981). The effects of early sexual experience: A review and synthesis of research. In L. L. Constantine & F. M. Martinson (Eds.), *Children and sex* (pp. 217-244). Boston: Little, Brown.

Cornell, D. G., Peterson, C. S., & Richards, H. (1999). Anger as a predictor of aggression among incarcerated adolescents. *Journal Of Consulting And Clinical Psychology, 67*, 108-115. doi:10.1037/0022-006X.67.1.108

Dube, S. R., Anda, R. F., Felitti, V. J., Croft, J. B., Edwards, V. J., & Giles, W. H.(2001). Growing up with parental alcohol abuse: Exposure to childhood abuse, neglect, and household dysfunction. *Child Abuse & Neglect, 25*, 1627-1640. doi:10.1016/S0145-2134(01)00293-9

Egeland, B., Yates, T., Appleyard, K., & van Dulmen, M. (2002). The long-term consequences of maltreatment in the early years: A developmental pathway model to antisocial behavior. *Children's Services: Social Policy, Research, & Practice, 5*, 249-260. doi:10.1207/S15326918CS0504_2

Erickson, M. F., Egeland, B., & Pianta, R. (1989). The effects of maltreatment on the development of young children. In D.Cicchetti & V. Carlson (Eds.), *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect* (pp. 647–684). New York, NY: Cambridge University Press.

Farrington, D. P. (2006). Family Background and Psychopathy. In C. J. Patrick, C. J. Patrick (Eds.), *Handbook of the psychopathy* (pp. 229-250). New York, NY US: Guilford Press.

Finkelhor, D., & Baron, L. (1986). Risk factors for child sexual abuse. *Journal Of Interpersonal Violence, 1*, 43-71. doi:10.1177/088626086001001004

Finkelhor, D., Hotaling, G., Lewis, I. A., & Smith, C. (1990). Sexual abuse in a national survey of adult men and women: Prevalence, characteristics, and risk factors. *Child Abuse & Neglect, 14*, 19-28. doi:10.1016/01452134(90)90077-7

Fleming, J., Mullen, P., & Bammer, G. (1997). A study of potential risk factors for sexual abuse in childhood. *Child Abuse & Neglect, 21*, 49-58. doi:10.1016/S0145-2134(96)00126-3

Frick, P. J., Lilienfeld, S. O., Ellis, M., Loney, B., & Silverthorn, P. (1999). The association between anxiety and psychopathy dimensions in children. *Journal Of Abnormal Child Psychology: An Official Publication Of The International Society* For Research In Child And Adolescent Psychopathology, 27, 383-392.

Frick, P. J., & White, S. F. (2008). Research review: The importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior. *Journal Of Child Psychology And Psychiatry, 49*, 359-375. doi:10.1111/j.1469-7610.2007.01862.x

Frodi, A., Dernevik, M., Sepa, A., Philipson, J., & Bragesjö, M. (2001). Current attachment representations of incarcerated offenders varying in degree of

psychopathy. *Attachment & Human Development*, *3*, 269-283. doi:10.1080/14616730110096889

Garner D.M. (1991). Eating Disorders Inventory II. *Psychological Assessment Resources*, Odessa, FL.

Graham, N., Kimonis, E. R., Wasserman, A. L., & Kline, S. M. (2011). Associations among childhood abuse and psychopathy facets in male sexual offenders. *Personality Disorders: Theory, Research, And Treatment*, doi:10.1037/a0025605

Grych, J. H., Fincham, F. D., Jouriles, E. N., & McDonald, R. (2000). Interparental conflict and child adjustment: Testing the mediational role of appraisals in the cognitive-contextual framework. *Child Development*, *71*, 1648-1661. doi:10.1111/1467-8624.00255

Grych, J. H., Jouriles, E. N., Swank, P. R., McDonald, R., & Norwood, W. D. (2000). Patterns of adjustment among children of battered women. *Journal Of Consulting And Clinical Psychology*, *68*, 84-94. doi:10.1037/0022-006X.68.1.84

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

Hare, R. D. (1991). The Hare Psychopathy Checklist–Revised. Toronto, ON, Canada: Multi-Health Systems.

Hare, R. D. (2003). Manual for the Revised Psychopathy Checklist, 2nd ed. Toronto, ON, Canada: Multi-Health Systems.

Hart, S. D., Cox, D. N., & Hare, R. D. (1995). The Hare Psychopathy Checklist: Screening Version. (PCL:SV). Toronto, Ontario, Canada: Multi-Health Systems.

Herman, J., & Hirschman, L. (1981). Families at risk for father-daughter incest. *The American Journal Of Psychiatry*, *138*, 967-970.

Hicks, B. M., Vaidyanathan, U., & Patrick, C. J. (2010). Validating female psychopathy subtypes: Differences in personality, antisocial and violent behavior, substance abuse, trauma, and mental health. *Personality Disorders: Theory, Research, And Treatment*, *1*, 38-57. doi:10.1037/a0018135

Johnson, D., Shea, M., Yen, S., Battle, C., Zlotnick, Sanislow, C., . . . Zanarini, M. (2003). Gender differences in borderline personality disorder: Findings from the Collaborative Longitudinal Personality Disorders Study. *Comprehensive Psychiatry, 44,* 284 –292. doi:10.1016/S0010- 440X(03)00090-7

Kendall-Tackett, K. A. (2000). Physiological correlates of childhood abuse: Chronic hyperarousal in PTSD, depression, and irritable bowel syndrome. *Child Abuse & Neglect, 24*, 799-810. doi:10.1016/S01452134(00)00136-8

Kendler, K. S., Aggen, S. H., Jacobson, K. C., & Neale, M. C. (2003). Does the level of family dysfunction moderate the impact of genetic factors on the personality trait of neuroticism? *Psychological Medicine: A Journal Of Research In Psychiatry And The Allied Sciences, 33*, 817-825. doi:10.1017/S0033291703007840

Kendler, K. S., Aggen, S. H., Knudsen, G., Røysamb, E., Neale, M. C., & Reichborn-Kjennerud, T. (2011). The structure of genetic and environmental risk factors for syndromal and subsyndromal common DSM-IV axis I and all axis II disorders. *The American Journal Of Psychiatry*, *168*, 29-39. doi:10.1176/appi.ajp.2010.10030340

Kent, A., & Waller, G. (1998) The impact of childhood emotional abuse: An extension of the child abuse and trauma scale. *Child Abuse and Neglect, 22,* 393-399.

Kimonis, E.R., Ray, J.V., Branch, J.R., & Cauffman, E. (2011). Anger mediates the relation between violence exposure and violence perpetration in incarcerated boys. *Child and Youth Care Forum: Special Issue on Trauma Exposure and PTSD in Justice-Involved Youth, 40,* 381-400. doi: 10.1007/s10566-010-9121-7

Kimonis, E.R., Skeem, J., Cauffman, E., & Dmitrieva, J. (2011). Are secondary variants of 'juvenile psychopathy' more reactively violent and less psychosocially mature than primary variants? *Law and Human Behavior, 35,* 381-391. doi: 10.1007/s10979-010-9243-3

Koenigs, M., Young, L., Adolphs, R., Tranel, D., Cushman, F., Hauser, M., & Damasio, A. (2007). Damage to the prefontal cortex increases utilitarian moral judgments. *Nature*, *446*, 908-911. doi:10.1038/nature05631

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

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., & Markon, K. E. (2006). Reinterpreting comorbidity: A model-based Approach to Understanding and Classifying Psychopathology. *Annual Review Of Clinical Psychology*, 2111-133. doi:10.1146/annurev.clinpsy.2.022305.095213

Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic

attributes in a noninstitutionalized population. *Journal Of Personality And Social Psychology, 68*, 151-158. doi:10.1037/0022-3514.68.1.151

Lilienfeld, S. O. (1992). The association between antisocial personality and somatization disorders: A review and integration of theoretical models. *Clinical Psychology Review, 12*, 641-662. doi:10.1016/0272-7358(92)90136-V

McClellan, D. S., Farabee, D., & Crouch, B. M. (1997). Early victimization, drug use, and criminality: A comparison of male and female prisoners. Criminal Justice And Behavior, *24*, 455-476. doi:10.1177/0093854897024004004

Mendel, M. (1995). *The male survivor: The impact of sexual abuse*. Thousand Oaks, CA US: Sage Publications, Inc.

Patrick, C. J., Zempolich, K. A., & Levenston, G. K. (1997). Emotionality and violence in psychopaths: A biosocial analysis. In A.Raine, D.Farrington, P.Brennan, & S. A.Mednick (Eds.), *The biosocial bases of violence* (pp. 145–161). New York: Plenum.

Paulhus, D. L., Neumann, C. S., & Hare, R. D. (in press). Manual for the Self-Report Psychopathy Scale. Toronto, ON, Canada: Multi-Health Systems.

Paveza, G. J. (1988). Risk factors in father-daughter child sexual abuse: A case-control study. *Journal Of Interpersonal Violence, 3*, 290-306. doi:10.1177/088626088003003

Poythress, N. G., Skeem, J. L., & Lilienfeld, S. O. (2006). Associations among early abuse, dissociation, and psychopathy in an offender sample. *Journal of Abnormal Psychology, 115*, 288– 297. doi: 10.1037/0021-843X.115.2.288

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments & Computers, 36*, 717-731.

Rader, N. E. (2010). Until death do us part? Husband perceptions and responses to fear of crime. *Deviant Behavior, 31*, 33-59. doi:10.1080/01639620902854704

Raine, A., Lencz, T., Bihrle, S., LaCasse, L., & Colletti, P. (2000). Reduced prefrontal gray matter volume and reduced autonomic activity in antisocial personality disorder. *Archives Of General Psychiatry, 57*, 119-127. doi:10.1001/archpsyc.57.2.119

Raine, A., & Yang, Y. (2006). The Neuroanatomical Bases of Psychopathy: A Review of Brain Imaging Findings. In C. J. Patrick, C. J. Patrick (Eds.), *Handbook of the psychopathy* (pp. 278-295). New York, NY US: Guilford Press.

Rauch, S. L., Whalen, P. J., Shin, L. M., McInerney, S. C., Macklin, M. L., Lasko, N. B., & ... Pitman, R. K. (2000). Exaggerated amygdala response to masked facial stimuli in posttraumatic stress disorder: A functional MRI study. *Biological Psychiatry, 47,* 769-776. doi:10.1016/S0006-3223(00)00828-3

Reidy, D. E., Zeichner, A., Hunnicutt-Ferguson, K., & Lilienfeld, S. O. (2008). Psychopathy traits and the processing of emotion words: Results of a lexical decision task. *Cognition And Emotion, 22,* 1174-1186. doi:10.1080/02699930701745663

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

Richmond, M. K., & Stocker, C. M. (2007). Changes in children's appraisals of marital discord from childhood through adolescence. *Journal Of Family Psychology, 21,* 416-425. doi:10.1037/0893-3200.21.3.416

Rind, B., & Tromovitch, P. (1997). A meta-analytic review of findings from national samples on psychological correlates of child sexual abuse. *Journal Of Sex Research, 34,* 237-255. doi:10.1080/00224499709551891

Roberts, B. W., Caspi, A., & Moffitt, T. E. (2001). The kids are alright: Growth and stability in personality development from adolescence to adulthood. *Journal Of Personality And Social Psychology, 81,* 670-683. doi:10.1037/0022-3514.81.4.670

Sanders, B., & Becker-Lausen, E. (1995). The measurement of psychological maltreatment: Early data on the child abuse and trauma scale. *Child Abuse & Neglect, 19,* 315–323.

Sanders, B., & Giolas, M. H. (1991). Dissociation and childhood trauma in psychologically disturbed adolescents. *American Journal of Psychiatry, 148,* 50–54.

Scarpa, A. (2001). Community violence exposure in a young adult sample: Lifetime prevalence and socioemotional effects. *Journal Of Interpersonal Violence, 16,* 36-53. doi:10.1177/088626001016001003

Sellbom, M., Ben-Porath, Y. S., & Bagby, R. (2008). On the hierarchical structure of mood and anxiety disorders: Confirmatory evidence and elaboration of a model of temperament markers. *Journal Of Abnormal Psychology, 117,* 576-590. doi:10.1037/a0012536

Sellbom, M., Ben-Porath, Y. S., Patrick, C. J., Wygant, D. B., Gartland, D. M., &

Stafford, K. P. (2012). Development and construct validation of MMPI-2-RF indices of global psychopathy, fearless-dominance, and impulsive-antisociality. *Personality Disorders: Theory, Research, And Treatment,* doi:10.1037/a0023888

Shah, R. Z., Dail, P. W., & Heinrichs, T. (1995). Familial influences upon the occurrence of childhood sexual abuse. *Journal Of Child Sexual Abuse*, *4*, 45-61. doi:10.1300/J070v04n04_03

Shipman, K., Edwards, A., Brown, A., Swisher, L., & Jennings, E. (2005). Managing emotion in a maltreating context: A pilot study examining child neglect. *Child Abuse & Neglect*, *29*, 1015-1029. doi:10.1016/j.chiabu.2005.01.006

Smith, S. S., & Newman, J. P. (1990). Alcohol and drug abuse-dependence disorders in psychopathic and nonpsychopathic criminal offenders. *Journal Of Abnormal Psychology*, *99*, 430-439. doi:10.1037/0021-843X.99.4.430

Steiger, J.H. (1980), Tests for comparing elements of a correlation matrix, *Psychological Bulletin*, 87, 245-251.

Talbot, N. L., Duberstein, P. R., King, D. A., Cox, C., & Giles, D. E. (2000). Personality traits of women with a history of childhood sexual abuse. *Comprehensive Psychiatry*, *41*, 130-136. doi:10.1016/S0010-440X(00)90146-9

Techakasem, P. & Kolkijkovin, V. (2001) Comparison between physical and sexual abuse of children in BMA Medical College and Vijara Hospital. *International Medical Journal*, *8*, 293–298.

Tellegen, A., & Ben-Porath, Y. S. (2008). The Minnesota Multiphasic Personality Inventory-2 Restructured Form: Technical manual. Minneapolis: University of Minnesota Press.

Tobin, R. M., Graziano, W. G., Vanman, E. J., & Tassinary, L. G. (2000). Personality, emotional experience, and efforts to control emotions. *Journal Of Personality And Social Psychology, 79*, 656-669. doi:10.1037/0022-3514.79.4.656

Tong, L., Oates, K., & McDowell, M. (1987). Personality development following sexual abuse. *Child Abuse & Neglect*, *11*, 371-383. doi:10.1016/0145-2134(87)90011-1

Trull, T. J. (2001). Structural relations between borderline personality disorder features and putative etiological correlates. *Journal Of Abnormal Psychology*, *110*, 471-481. doi:10.1037/0021-843X.110.3.471

Urquiza, A. J., & Capra, M. (1990). The impact of sexual abuse: Initial and long-term effects. In M. Hunter, M. Hunter (Eds.), *The sexually abused male, Vol. 1: Prevalence, impact, and treatment* (pp. 105-135). Lexington, MA England:

Lexington Books/D. C. Heath and Com.

U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2010). *Child Maltreatment* 2009. Available from http://www.acf.hhs.gov/programs/cb/stats_r%20esearch/index.htm#can.

Verona, E., Hicks, B. M., & Patrick, C. J. (2005). Psychopathy and Suicidality in Female Offenders: Mediating Influences of Personality and Abuse. J*ournal Of Consulting And Clinical Psychology*, *73*, 1065-1073. doi:10.1037/0022-006X.73.6.1065

Verona, E., & Vitale, J. (2006). Psychopathy in Women: Assessment, Manifestations, and Etiology. In C. J. Patrick, C. J. Patrick (Eds.), *Handbook of the psychopathy* (pp. 415-436). New York, NY US: Guilford Press.

Viding, E., Blair, R. R., Moffitt, T. E., & Plomin, R. (2005). Evidence for substantial genetic risk for psychopathy in 7-year-olds. Jou*rnal Of Child Psychology And Psychiatry*, *46*, 592-597. doi:10.1111/j.1469-7610.2004.00393.x

Walters, G. D. (2003). Predicting institutional adjustment and recidivism with the psychopathy checklist factor scores: A meta-analysis. *Law And Human Behavior*, *27*, 541-558. doi:10.1023/A:1025490207678

Weiler, B., & Widom, C. (1996). Psychopathy and violent behaviour in abused and neglected young adults. *Criminal Behaviour And Mental Health*, *6*, 253-271. doi:10.1002/cbm.99

White, H., & Widom, C. (2003). Does childhood victimization increase the risk of early death? A 25-year prospective study. *Child Abuse & Neglect*, *27*, 841-853. doi:10.1016/S0145-2134(03)00110-8

Wonderlich, S. A., Crosby, R. D., Mitchell, J. E., Thompson, K., Smyth, J. M., Redlin, J., & Jones-Paxton, M. (2001). Sexual trauma and personality: Developmental vulnerability and additive effects. *Journal Of Personality Disorders*, *15*, 496-504. doi:10.1521/pedi .15.6.496.19193

Yang Y, Raine A, Narr K.L, et al. Amygdala volume reduction in psychopaths [abstract]. Poster presentation at the Twentieth Annual Meeting of the Society of Research in Psychopathology. 2006.

Zanarini, M. C. (2000). Childhood experiences associated with the development of borderline personality disorder. *Psychiatric Clinics Of North America*, *23*, 89-101. doi:10.1016/S0193-953X(05)70145-3