

University of Mississippi

eGrove

Electronic Theses and Dissertations

Graduate School

2012

Identifying Dysfunction in Persistent Social Deviance: Perspective Taking as a Mediator of the Relationship Between Psychopathy and Social Aggression

Olga Vadymovna Berkout

Follow this and additional works at: <https://egrove.olemiss.edu/etd>



Part of the [Psychology Commons](#)

Recommended Citation

Berkout, Olga Vadymovna, "Identifying Dysfunction in Persistent Social Deviance: Perspective Taking as a Mediator of the Relationship Between Psychopathy and Social Aggression" (2012). *Electronic Theses and Dissertations*. 50.

<https://egrove.olemiss.edu/etd/50>

This Dissertation is brought to you for free and open access by the Graduate School at eGrove. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of eGrove. For more information, please contact egrove@olemiss.edu.

IDENTIFYING DYSFUNCTION IN PERSISTENT SOCIAL DEVIANCE: PERSPECTIVE
TAKING AS A MEDIATOR OF THE RELATIONSHIP BETWEEN PSYCHOPATHY AND
SOCIAL AGGRESSION

A Dissertation
presented in partial fulfillment of requirements
for the degree of Doctor of Philosophy
in the Department of Psychology
The University of Mississippi

by
OLGA V. BERKOUT

Copyright Olga V. Berkout 2012

ALL RIGHTS RESERVED

ABSTRACT

Psychopathy has been associated with social aggression in a number of studies. Perspective taking (e.g. theory of mind and empathy) has been inversely associated with both psychopathy and social aggression, suggesting that it may serve as a potential mediator of this relationship. Structural equation modeling (SEM) was used to assess perspective taking as a potential partial mediator of the relationship between psychopathy and social aggression in a sample of 439 undergraduates. Although bivariate correlations produced the expected negative relationships between perspective taking and psychopathy and social aggression, perspective taking did not function as a mediator in the SEM analysis. Implications for future research and conceptualizations of psychopathic mechanisms of dysfunction are discussed.

DEDICATION

This dissertation is dedicated to my friends, family, and my wonderful advisor Alan Gross.

LIST OF ABBREVIATIONS AND SYMBOLS

ΔR^2 Change in the coefficient of determination

χ^2 Chi squared

AQ Aggression Questionnaire

AQ H Aggression Questionnaire Hostility

AQ PA Aggression Questionnaire Physical Aggression

AQ VA Aggression Questionnaire Verbal Aggression

AQ A Aggression Questionnaire Anger

ASD Autism Spectrum Disorders

B Unstandardized regression coefficient

β Standardized Beta Coefficient

CFI Comparative Fit Index

CI Confidence Interval

df Degrees of Freedom

EF Paternal Educational Attainment

EM Maternal Educational Attainment

EQ Empathy Quotient

F F test statistic

F for ΔR^2 F test statistics for the change in the coefficient of determination

FIML Full Information Maximum Likelihood

fMRI Functional Magnetic Resonance Imaging

IAS-A Indirect Aggression Scale-Aggressor

IAS MH Indirect Aggression Scale-Aggressor Malicious Humor

IAS GI Indirect Aggression Scale-Aggressor Guilt Induction

IAS SE Indirect Aggression Scale-Aggressor Social Exclusion

IAS-T Indirect Aggression Scale-Target

IQ Intelligence Quotient

IRI Interpersonal Reactivity Index

IRI EC Interpersonal Reactivity Index Empathic Concern

IRI FS Interpersonal Reactivity Index Fantasy

IRI PD Interpersonal Reactivity Index Personal Distress

IRI PT Interpersonal Reactivity Index Perspective Taking

KR-20 Kuder-Richardson 20 (fix p 38)

LSRPS Levenson's Self Report Psychopathy Scales

MAR Missing At Random

MCSDS Marlowe-Crowne Social Desirability Scale

MCSDS-SF Marlowe-Crowne Social Desirability Scale-Short Form

p the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true

PCL Psychopathy Checklist

PCL-R Psychopathy Checklist Revised

PPI-SF Psychopathic Personality Inventory-Short Form

PPI-R Psychopathic Personality Inventory-Revised

PSPM Psychology Study Participant Manager

r Pearson's product by moment correlation coefficient

R² Coefficient of Determination

R^2_{smc} Squared Multiple Correlation

RFT Relational Frame Theory

RMSEA Root Mean Square Error of Approximation

SD Standard Deviation

SE B Standard error of the unstandardized regression coefficient

SEM Structural Equation Modeling

SES Socioeconomic Status

SRASB Self-Report of Aggression and Social Behavior

SRASB CG Self-Report of Aggression and Social Behavior Cross Gender

SRASB P Self-Report of Aggression and Social Behavior Proactive

SRASB R Self-Report of Aggression and Social Behavior Reactive

SRMR Standardized Root Mean Square Residual

TLI Tucker Lewis Index

ULI Unit Loading Identification

ACKNOWLEDGEMENTS

I could not have completed this dissertation without a wonderfully supportive department and committee. Dr. Gross, Dr. Young, Dr. Bentley, and Dr. Wilson have all been tremendously helpful and supportive throughout this process. I appreciate all of your help.

TABLE OF CONTENTS

ABSTRACT.....	ii
DEDICATION.....	iii
LIST OF ABBREVIATIONS AND SYMBOLS.....	iv
ACKNOWLEDGEMENTS.....	ix
LIST OF TABLES.....	xiii
LIST OF FIGURES.....	xv
I. INTRODUCTION.....	1
1. Psychopathy.....	1
2. Social Aggression.....	3
3. Etiology of Psychopathy.....	14
4. Perspective Taking.....	18
5. Perspective Taking Dysfunction in Psychopathy.....	21
II. METHODS.....	28

1. Measures.....	28
2. Participants.....	36
3. Procedure.....	36
III. RESULTS.....	37
1. Distribution of Major Variables of Interest.....	37
2. Removal of Outliers.....	37
3. Testing for Assumptions of Structural Equation Modeling.....	38
4. Preliminary Analyses.....	40
5. Primary Analyses.....	41
IV. DISCUSSION.....	49
1. Limitations.....	55
2. Conclusions and Future Directions.....	56
REFERENCES.....	57
LIST OF APPENDICES.....	76
APPENDIX A.....	77

APPENDIX B.....	80
APPENDIX C.....	97
VITA.....	120

LIST OF TABLES

1. Table 1. Demographic Characteristics.....	100
2. Table 2. Skew and Kurtosis of Primary Variables of Interest.....	101
3. Table 3. Descriptive Statistics for Major Variables of Interest.....	102
4. Table 4. Squared Multiple Correlations for Variables of Interest.....	104
5. Table 5. Proportion of Missing Data for Major Variables of Interest.....	106
6. Table 6. Comparison of Participants with Missing Data on SRASB Proactive Relational Aggression, SRASB Cross Gender Relational Aggression, or Estimated Annual Household Income.....	108
7. Table 7. Pearson’s Bivariate Correlations Between Measures of Social and Direct Aggression.....	110
8. Table 8. Pearson’s Bivariate Correlations Between Psychopathy and Aggression.....	111
9. Table 9. Pearson’s Bivariate Correlations Between Psychopathy and Perspective Taking...	112
10. Table 10. Pearson’s Bivariate Correlations Between Perspective Taking and Social and Direct Aggression.....	113
11. Table 11. Pearson’s Bivariate Correlations Among IRI Perspective Taking Scales.....	114

12. Table 12. Hierarchical Regression Predicting Physical Aggression as a Function of
Psychopathy and Perspective Taking.....115

13. Table 13. Hierarchical Regression Predicting Verbal Aggression as a Function of
Psychopathy and Perspective Taking.....118

LIST OF FIGURES

1. Figure 1. Structural Regression Model 1.....121

I. INTRODUCTION

1. Psychopathy

Psychopathy has been defined as a personality construct centered on a persistent tendency towards callous socially deviant behavior disregarding the rights of others (Cleckley, 1976; Hare, 1993). Characteristics associated with psychopathy include predisposition towards weak emotional responding, lack of empathy, overestimation of self-worth compared to external measures of success, difficulties in generating feasible long term goals and following through on plans, and parasitic interactions with others (Hare, Hart, & Harpur, 1991). Psychopathy assessment instruments commonly follow the Psychopathy Checklist (PCL; Hare, 1980) in separating the construct into an interpersonal and affective deficit focused Factor I and a criminality and irresponsibility focused Factor II. Historically, scholars have considered psychopathy to be a taxonomically distributed personality construct and explored differences between individuals high vs. below cut-off/particularly low in psychopathy; however, recent mathematical modeling analyses have demonstrated psychopathy to be dimensionally distributed (Edens, Marcus, Lilienfeld, & Poythress, 2006; Guay, Ruscio, Knight, & Hare, 2007). Prior examinations of individuals meeting the clinical cut off for “psychopathy” as a disorder can thus be considered to be discussing individuals with high enough levels of psychopathy that maladaptive expressions are likely. Clinically significant levels of psychopathy (as assessed by the Psychopathy Checklist-Revised; most recent edition Hare, 2003) have been found to be

present in approximately one percent of the general population (Forth, Brown, Hart, & Hare, 1996) and among about 20% to 30% of offenders (Hare, 1993; Olver & Wong, 2009).

1a. Maladaptive Expressions of Psychopathy

High levels of psychopathy have been related to a number of outcomes harmful to both the individual and society. Hare (1999) argued that high psychopathy is associated with a tendency to engage in particularly callous instrumental aggression towards others. Offenders high in psychopathy have been found to be much more likely to receive probation suspensions (78.9% high psychopathy, 54.5% medium psychopathy, 26.5% low psychopathy), with mathematical modeling predicting that the probability of remaining out of prison was about .70 for offenders low and .10 for offenders high in psychopathy over the course of three years (Hart, Kropp, & Hare, 1988). Forensic psychiatric patients meeting clinical cut offs for psychopathy were three times more likely to engage in non-violent and seven times more likely to engage in violent offences over a five year period, compared to patients with lower levels of psychopathy (Pedersen, Kunz, Rasmussen, & Ellass, 2010). Psychopathy (assessed using the PCL-R) demonstrated weighted mean effect sizes of .26 for destruction of property and verbal aggression (combined) and .17 for physical aggression among institutionalized offenders and psychiatric patients in a meta-analytic review of 34 studies (Guy, Edens, Anthony, & Douglas, 2005). High levels of psychopathy tend to manifest in behavior harmful to others and lead to the expenditure of forensic and social service resources.

Violence and antisocial behavior associated with psychopathy has been extensively studied within forensic samples. Recently, scholars have begun to explore maladaptive behaviors

associated with psychopathy among non-institutionalized individuals. Various forms of social aggression have been related to psychopathy within adolescents and young adults. We review the literature on psychopathy and social aggression in this population and discuss potential mechanisms of dysfunction consistent with the current conceptual framework.

2. Social Aggression

Relational, indirect, and social aggression are all terms that have been used by scholars to describe harming others through largely indirect and non-confrontational means (Archer & Coyne, 2005). Behaviors studied by researchers examining indirect, relational, and social aggression are similar, with distinctions made in the manner the terms are used and group of scholars using them (Archer & Coyne, 2005). Indirect aggression has been defined by the use of manipulative covert harmful acts, including unfair judgments of work performance, rumor spreading, using guilt to change others' behavior, vandalism, exclusion from social activities, sharing confidential information, and making vaguely hurtful statements (Archer & Coyne, 2005; Bjorqvist, 1994). Ability to harm the victim with little risk to the perpetrator has been particularly important in defining indirect aggression (Bjorqvist, 1994). Typically covert damage to interpersonal relationships through exclusion from social activities, malicious rumors, using guilt to change others' behavior, and sharing confidential information, have characterized relational aggression (Archer & Coyne, 2005; Crick & Grotpeter, 1995). Relational aggression has been more commonly studied among youth, with the area of research rising from scholars' attempts to identify a female-typical form of harm (Crick & Grotpeter, 1995). Social aggression has been defined by harm to status and self-esteem of the victim and encompasses behaviors within both indirect and relational aggression (Archer & Coyne, 2005).

Although variation in definitions exists, generally social, indirect, and relational aggression cover behaviors harmful to another's social relationships, with potential for some variation in topography in the behaviors associated with each term (i.e. social aggression has also been used to discuss non-verbal communication, such as eye rolling, indirect aggression may include vandalism, as long as the perpetrator remains hidden from the victim; Archer & Coyne, 2005). Survey of socially aggressive behaviors among adolescents indicated that negative facial expressions, gossip, and making fun of the victim in front of a group were most frequently reported, whereas sharing confidential information, making fun of the victim in front of others, and negative facial expressions were seen as most harmful (Coyne, Archer, & Eslea, 2006).

Workplace bullying among adults has touched on similar concepts (from a distinct perspective and separate group of scholars) including harm through persistent direct and indirect verbal statements intended to damage workplace social relationships (ranging from teasing to failing to give credit for work; Quine, 1999). Use of the term "workplace bullying" placed greater emphasis on the damage done to the victim (Quine, 2001) and on the existence of a power differential between bully and victim (Lutgen-Sandvik, Tracy, & Alberts, 2007). Study of socially aggressive behaviors among adults has more frequently focused on workplace bullying (Forrest, Eatough, & Shelvin, 2005), whereas youth samples have more commonly been used in studies of the other forms of social harm. For simplicity, we will use the term social aggression to refer to social behaviors aimed at harming the individuals' interpersonal relationships (including relational aggression, indirect aggression, and workplace bullying), unless a particular form of social aggression has been specified by researchers.

2a. Prevalence of Social Aggression

A substantial proportion of adults and adolescents have experienced socially aggressive behavior. Prevalence rates were more frequently reported for workplace bullying within our search of the literature, potentially due to the focus on persistent harm within the workplace bullying definition (Lutgen-Sandvik et al., 2007; Quine, 1999). Workplace bullying victimization may have been viewed as distinct from the frequently more dimensional definitions of other forms of social aggression. Some social aggression appears to be experienced by most individuals. For example, 91.8% of undergraduates reported experiencing and 96% perpetrating some social aggression towards a romantic partner (Goldstein, Chesir-Teran, & McFaul, 2008). Others had found that 39% male and 56% female adolescents reported perpetrating relational aggression within romantic relationships and 85% males and 90% females reported perpetration against peers (Ellis, Crooks, & Wolfe, 2009). Using more stringent criteria of scores at least one standard deviation above the mean, Williams, Fredland, Han, Campbell, and Kub (2009) found that 16.8% of a sample of primarily African American adolescents could be classified as perpetrators and 18.4% as victims of relational aggression.

Despite its typically more stringent definition, reports of workplace bullying are fairly common. For example, exclusion from workplace social networks has been reported by 13%, social isolation by 27%, and use of humor to harm the victim by 11% of adults in a large sample of 1,100, with 44% experiencing some form of workplace bullying (Quine, 1999; Quine, 2001). Weekly negative workplace experiences continuing for at least six months were reported by 28% of respondents in another study, although, interestingly only 9.4% self-identified as victims of workplace bullying (Lutgen-Sandvik et al., 2007).

Social aggression (particularly relational aggression) has been discussed as the female-typical expression of aggressive behavior (Crick & Grotpeter, 1995). Researchers have explored gender differences in prevalence among adolescents and adults. Goldstein, Chesir-Teran, and McFaul (2008) found that, among young adults, females were more likely to report being relationally aggressive and males being victimized by relational aggression within romantic relationships. On the other hand, Bailey and Ostrov (2008) found no gender differences in relational aggression among undergraduates, although males did report greater engagement in physical aggression. Murray-Close, Ostrov, Nelson, Crick, and Coccaro (2010) similarly demonstrated no gender differences in relational aggression among undergraduates, although females were more likely to engage in relational aggression within romantic relationships and males in relational aggression against peers. Relational aggression assessed through peer nominations showed no differences across gender among adolescents (Rose & Swenson, 2009). Findings have been somewhat mixed, but both male and female adolescents and young adults appear to engage in socially aggressive behaviors (with potential differences in the relationship context within which they are expressed).

2b. Correlates of Perpetration

Relationships between perpetration of social aggression and psychological difficulties have been studied. Werner and Crick (1999) found that greater peer perceived relational aggression was related to decreased peer reported desire to spend time with the perpetrator, reports of higher self-harm, instability of affect, negative interpersonal relationships, and bulimic symptomatology (for females only) among college students. Perpetration of relational aggression

against peers was found to negatively predict emotional adjustment four months later among adolescents (Ellis, Crooks, & Wolfe, 2009). Relational aggression perpetration has similarly been associated with features of borderline personality disorder among female undergraduates (Ostrov, Hart, Kamper, & Godleski, 2011). Engagement in relational aggression within romantic relationships correlated with symptoms of depression ($r = .28$) and anxiety ($r = .29$) among young adults (Goldstein, Chesir-Teran, & McFaul, 2008). Perpetration of social aggression has been associated with psychological maladjustment among adolescents and young adults (Ellis, Crooks, & Wolfe, 2009; Goldstein, Chesir-Teran, & McFaul, 2008; Ostrov, Hart, Kamper, & Godleski, 2011; Werner & Crick, 1999)

Despite associations with psychopathology, engagement in social aggression does not necessarily have a negative impact on the perpetrator. Prinstein and Cillessen (2003) found that being perceived to be engaging in high levels of social aggression was associated with perceptions of popularity among adolescents, using peer nomination methodology. Peer desire to spend time with the perpetrator was not inversely related to social aggression and instrumental use of social aggression correlated with high popularity and peer reports of desire to spend time with the perpetrator (Prinstein & Cillessen, 2003). In a follow-up study Prinstein and Cillessen (2003) demonstrated that being perceived as popular (and interestingly lower peer preference) predicted engagement in social aggression among adolescents 17 months later. Authors argued that instrumental use of social aggression may be maintained through social reinforcement over time (Prinstein & Cillessen, 2003). Puckett, Aikins, and Cillessen (2008) similarly found that engagement in relational aggression predicted higher peer perceived popularity among adolescents, particularly for perpetrators reporting high social self-efficacy (moderate positive effect for those low in social self-efficacy, large positive effect for those high in social self-

efficacy). Being socially skilled (reporting peer sociability and cooperation) moderated the effect, with individuals high in social skills and high in relational aggression being perceived as more popular by peers (Puckett et al., 2008). Peer nominations for relational aggression consistently demonstrated lack of a relationship to internalizing symptoms only among perpetrators perceived as popular (unpopular adolescents showed the expected positive relationship; Rose & Swenson, 2009). Engagement in some forms of social aggression by particular individuals appears to have the potential to be beneficial.

2c. Correlates of Victimization

Scholars have explored associations between indicators of maladjustment and social aggression. Relational aggression victimization has been linked with social anxiety (zero order correlation r 's ranging from .18 to .33) and broader cognitive and physiological symptoms of anxiety (zero order correlation r 's ranging from .25 to .35) among undergraduates (Gros, Gros, & Simms, 2010). Relational victimization within romantic relationships demonstrated similar links to depression ($r = .30$) and anxiety ($r = .29$) among young adults (Goldstein, Chesir-Teran, & McFaul, 2008). Retrospective reports of being relationally victimized in adolescence were consistently associated with current depressive symptoms (explaining 8% of the variability) and social anxiety (explaining 3% of the variability) among college students (Dempsey, A. G. & Storch, 2008). Ostrov, Hart, Kamper, and Godleski (2011) further found relationships between features of borderline personality disorder and victimization ($R^2 = .22$) among female undergraduates.

Maladjustment associated with relational victimization has been explored among primarily African American samples. Gomes, Davis, Baker, and Servonsky (2009) found associations between relational victimization and depressive symptoms among African American female undergraduates ($r = .29$). Relational victim status (defined as scores one standard deviation above mean on questionnaire) was further related to internalizing among African American male (although not female) adolescents (Williams, Fredland, Han, Campbell, & Kub, 2009).

Relationships between negative outcomes and workplace bullying victimization have been considered. Quine (1999) showed that greater proportions of bullied employees reported anxiety (30% bullied vs. 8% not) and depression (8% bullied vs. 1% not). Negative relationships between workplace bullying and depression (r 's ranging from .21 to .37), anxiety (r 's ranging from .23 to .41) and job satisfaction (r 's ranging from .20 to .39) were similarly found (Quine, 2001). Furthermore, experiencing prolonged workplace bullying has been predictive of greater likelihood of developing new depression (odds ratio = 4.8) and cardiac disease (odds ratio = 2.3) over the course of two years among adults over and above demographic data (Kivimaki et al., 2003). Controlling for weight decreased the strength of the association between experiencing bullying and developing cardiac disease (odds ratio = 1.62), but not for developing depression (odds ratio = 4.16; Kivimaki et al., 2003). Findings suggest that being a victim of social aggression is both associated with and predictive of the development of health and psychological difficulties.

2d. Social Aggression in Psychopathy

Engagement in socially aggressive behavior is consistent with the tendency towards callous interpersonal interactions argued to be associated with psychopathy (Hare, 1993). Although research on psychopathy and social aggression is new, scholars have begun to explore relationships. Schmeelk, Sylvers, and Lilienfeld (2008) analyzed the affiliation between aggression and symptoms of personality disorder pathology (including psychopathy) among 220 college students ($\approx 69\%$ female) using survey methodology. Males reported more engagement in relational aggression (*Cohen's* $d = .50$), overt (verbal & physical) aggression (*Cohen's* $d = .60$), and higher psychopathy (*Cohen's* $d = .90$) than females. Self-reported tendency towards socially desirable responding did not show significant associations with other data. Endorsement of psychopathy was related to reports of both overt ($r = .33$) and relational aggression ($r = .31$), with the relationship with relational aggression remaining after overt aggression was controlled ($r = .17$). Strength of association between psychopathy and both relational and overt aggression was similar across gender (Schmeelk et al., 2008). Schmeelk and colleagues (2008) argued that the lack of a gender difference in the relationship between psychopathy and relational aggression may indicate that psychopathic dysfunction expresses equally through indirect (as opposed to overt) methods among females.

Multiple self-report measures of psychopathy were examined in conjunction with questionnaire and behavioral assessments of aggression among 143 undergraduates ($\approx 38\%$ female; Seibert, Miller, Few, Zeichner, & Lynam, 2010). Psychopathy subscales exhibited bivariate correlations ranging from .47 to .24 with measures of relational aggression. Participants engaged in a competition laboratory task where shocks could ostensibly be delivered to and received from a competitor to provide a behavioral measure of aggression: mean shock duration, intensity, and frequency were combined into a single variable. Bivariate correlations between

self-reported psychopathy scales and the behavioral aggression data ranged from .23 to .43 (Seibert et al., 2010). Findings of similar relationship between psychopathy and self-report relational and behavioral aggression support the idea that social aggression may serve as a means of harming others among individuals high in psychopathy.

Marsee, Silverhorn, and Frick (2005) investigated relationships between psychopathy and aggression among 200 adolescents ($\approx 57\%$ female) using student reports of aggression and psychopathy and teacher ratings of youth psychopathy. Youth-reported psychopathy was positively related to self-reports of both relational ($r = .41$) and physical ($r = .47$) aggression, with smaller significant associations between teacher ratings of psychopathy and both forms of aggression. Gender appeared to moderate relationships: self-reported psychopathy was more strongly related to physical aggression for boys than girls (Marsee et al., 2005). Data upheld the existence of an association between psychopathy and social aggression.

Survey methodology was used to assess psychopathy and relational aggression among 291 undergraduates ($\approx 59\%$ female; Czar, Dahlen, Bullock, & Nicholson, 2011). Researchers used the *Levenson Self-Report Psychopathy Scale* (LSRPS; Levenson, Keihl, & Fitzpatrick, 1995) to assess psychopathy, obtaining scores for Factor I (interpersonal and affective deficits) and Factor II (antisocial and irresponsible behavior) psychopathy scales. Higher psychopathy scores, but not reports of relational aggression were found among males compared to females. Reports of relational and physical aggression evidenced a positive relationship ($r = .60$). Psychopathy explained 17% of the variance in relational aggression over and above variance accounted for by physical aggression and gender ($\beta = .34$ Factor I, $\beta = .22$ Factor II). A similar smaller relationship was found between psychopathy and romantic relational aggression, with

psychopathy explaining an additional 12% of the variance in romantic relational aggression over and above physical aggression and gender (Czar et al., 2011).

Coyne, Nelson, Graham-Kevan, Keister, and Grant (2010) investigated relationships between self-reports of psychopathy (LSRPS; Levenson et al., 1995) and physical and romantic relational aggression among 337 ($\approx 55\%$ female) undergraduates. Factor I psychopathy was associated with perpetration of relational aggression within romantic relationships ($r = .26$ males, $r = .32$ females) and Factor II psychopathy with both relational ($r = .30$ males, $r = .37$ females) and physical aggression ($r = .25$ males, $r = .31$ females; Coyne et al., 2010). Results provided further evidence that psychopathy was related to social aggression within the community.

Interrelations among psychopathy (LSRPS; Levenson et al., 1995), academic dishonesty, and overt and indirect aggression (*Indirect Aggression Scale*, IAS; Forrest, Eatough, & Shelvin, 2005) were examined among 234 undergraduates ($\approx 75\%$ female) using survey methodology (Coyne & Thomas, 2008). Factor I demonstrated associations with academic dishonesty ($r = .22$), engagement in indirect aggression through spreading malicious rumors ($r = .41$), social exclusion ($r = .44$), and inducing guilt ($r = .47$), and indirect aggression total scores ($r = .47$), as well as physical ($r = .37$) and verbal ($r = .25$) direct aggression. Factor II was related to reports of indirect aggression through social exclusion ($r = .36$), inducing guilt ($r = .28$), and spreading malicious rumors ($r = .27$), indirect aggression total scores ($r = .34$), as well as physical ($r = .43$) and verbal ($r = .55$) direct aggression. Coyne and Thomas (2008) also performed regression analyses with variables predicting psychopathy (inconsistent with psychopathy serving as causal variable to engagement in aggressive and antisocial behavior in most theoretical conceptualizations) and generally found expected positive associations. Overall, the study supported the association between psychopathy and social aggression.

Warren and Clabour (2009) explored relationships between self-reports psychopathy (using the Psychopathic Personality Inventory-Revised; PPI-R; Lilienfeld & Widows, 2005) and engagement of indirect aggression among 103 undergraduates ($\approx 82\%$ female). Psychopathy total scores were associated with use of malicious humor ($r = .52$), guilt ($r = .32$), and social exclusion ($r = .26$) to harm others. Due to concerns over floor effects on the measure of indirect aggression (IAQ; Forrest et al., 2005), researchers conducted a follow-up examination using a sample of 201 undergraduates ($\approx 59\%$ female) modifying indirect aggression questionnaire response format to provide dimensional rather than categorical data and adding questionnaire measures of direct aggression and social desirability in responding. Associations between psychopathy and indirect aggression remained significant but were smaller after socially desirable responding was controlled for; with correlations ranging from $r = .16$ to $r = .29$. Psychopathy was also positively associated with verbal ($r = .32$) and physical ($r = .34$) aggression after controlling for socially desirable responding (Warren & Clabour, 2009).

Empirical examinations have supported the existence of a relationship between psychopathy and various types of social aggression. Correlations between survey measures of psychopathy and relational aggression have ranged from small to moderate (.24 to .47; Czar et al., 2011; Marsee et al., 2005; Schmeelk et al., 2008; Seibert et al., 2010) and relational aggression appears to show a unique small to moderate association to psychopathy (.17; Schmeelk et al., 2008 to .33; Czar et al., 2011) over and above overt aggression. Furthermore, psychopathy has demonstrated positive relationships with reports of engagement in relational aggression within romantic relationships (r 's ranging from .26 to .37; Coyne et al., 2010). Examinations of indirect aggression showed similar associations; with correlations with psychopathy ranging from $r = .26$ to $r = .52$ (Coyne & Thomas, 2008; Warren & Clabour,

2009). While males tend to obtain higher psychopathy scores than females in non-institutionalized samples (Schmeelk et al., 2008), data on gender differences in social aggression have been mixed. Some researchers have found greater reported engagement in relational aggression among males (Schmeelk et al., 2008), whereas others have not found differences (Czar et al., 2011). Nonetheless, examination of gender as a moderator of relationships may be important for future research (Marsee et al., 2008).

Positive associations between psychopathy and social aggression (Coyne & Thomas, 2008; Czar et al., 2011; Marsee et al., 2005; Schmeelk et al., 2008; Seibert et al., 2010; Warren & Clarbour, 2009) are not surprising given the large research base on psychopathy serving as a predictor of violence among forensic samples (Guy, Edens, Anthony, & Douglas, 2005; Pedersen, Kunz, Rasmussen, & Ellass, 2010). Given the relationship between victimization by social aggression and development and experience of psychological distress (Gomes, Davis, Baker, & Servonsky, 2009; Gros, Gros, & Simms, 2010; Kivimaki et al., 2003; Quine, 1999; 2001), research exploring mechanisms of dysfunction leading individuals high in psychopathy to aggress could be used to decrease psychological suffering for substantial proportion of individuals (Lutgen-Sandvik et al., 2007; Quine, 1999; Quine, 2001).

3. Etiology of Psychopathy

3a. Genetic Influences

Development of high levels of psychopathy has been argued to be strongly influenced by genetic risk factors (Hare, 1993; Karpman, 1948). Scholars proposed that psychopathy evolved as a “cheating adaptation,” with a small proportion of the population possessing high levels

which enhance reproductive fitness through mistreatment of others (e.g. stealing, rape, promiscuity; Glenn & Raine, 2009; Harpending & Sobus, 1987). From this perspective, genetic differences would account for an individual's level of psychopathy, which could express as uncaring behaviors harmful to others. Greater genetic affinity has been associated with greater concurrence in psychopathy (ex: 73% similarity in psychopathy among identical and 38% in fraternal twins; Viding, Blair, Moffitt, & Plomin, 2005). However, efforts to identify specific genetic markers have yielded mixed results, potentially disturbances in dopamine and decreases in serotonin function may be important in the development of psychopathy (Gunter, Vaughn, & Philibert, 2010). Some support for genetic influence on the development of psychopathy has been found, but more research is needed.

3b. Neurobiological Factors

Neurobiological differences have been explored in the etiology of psychopathy. Deficits in amygdala and limbic system function have been argued to result in failures in emotional processing, leading to a lack of empathy and difficulty modifying behavior in response to aversives (due to absence of associated negative affect) among individuals high in psychopathy (Blair, 2001; Blair, Peschardt, Budhani, Mitchell, & Pine, 2006; Kiehl et al., 2001). Areas within the frontal and prefrontal cortex have been implicated in the deficits in learning and impulsivity associated with high levels of psychopathy (Blair, 2010; Kiehl, Hare, Liddle, & McDonald, 1999; Yang et al., 2005). Neurobiological differences in structures responsible for emotional responding (particularly to the distress of others) and learning/modification of behavior have been proposed to contribute to the development psychopathy.

3c. Autonomic and Affective Response

In addition to deficits in limbic system functioning in psychopathy (Blair, 2001; Blair et al., 2006; Kiehl et al., 2001), autonomic under-arousal/under-reactivity have been considered as potential mechanisms of dysfunction. From this perspective, individuals high in psychopathy experience less fear/negative affect in response to aversives leading to difficulties in modifying behavior following punishment and subsequent failure in appropriate socialization (Hare, 1993; Karpman, 1941; Lykken, 1957). Psychopathy has been found to be inversely related to skin conductance reactivity to aversives (mean effect size = $-.31$) and baseline skin conductance (mean effect size = $-.30$) in a meta-analytic review, with the difference argued to demonstrate a deficit in fear among individuals high in psychopathy (Lorber, 2004). Offenders with high levels of psychopathy have similarly shown decreased skin conductance following perceived administrations of shock in a teacher-learner paradigm compared to those with low levels of psychopathy (Dengerink & Bertilson, 1975). Imagining the self in aversive situations was similarly related to decreased heart rate reactivity among individuals high compared to those low in psychopathy (Patrick, Cuthbert, & Lang, 1994).

Although physical (shock; Hare, 1966) and tangible (loss of potential to earn money; Newman, Kosson, & Patterson, 1992) aversives have been used to explore differences among individuals high in psychopathy, examinations of response to distress of others (designated aversive by researchers) may be most interesting given associations between high psychopathy and engagement in behavior harmful to others. For example, Patrick, Bradley, and Lang (1993) found no differences in startle responding to pleasant (food, opposite sex nudes) compared to

unpleasant (guns, mutilations) images among offenders with clinically significant levels of psychopathy (meeting PCL-R; Hare, 1991 cut-offs), whereas offenders failing to meet cut-off demonstrated potentiated startle effect following exposure to aversive imagery. Furthermore, individuals meeting psychopathy cut-off showed greatest startle in response to neutral imagery (Patrick et al., 1993). Patrick and colleagues (1993) argued that participants high in psychopathy may have found the emotional arousal associated with both pleasant and unpleasant images to be appetitive, accounting for lesser magnitude of startle responding following exposure to these compared to neutral images.

Deficits in autonomic arousal/reactivity associated with high levels of psychopathy may be found both due to inherent neurobiological/physiological differences or a tendency for differing stimuli to function as aversive among individuals high in psychopathy. If others' distress does not serve an aversive function among individuals high in psychopathy, as evidenced by Dengerink and Bertilson's (1975) findings of decreased autonomic responding in a teacher learner paradigm and Patrick and colleagues (1993) lack of a difference between responses to pleasant images compared to unpleasant images (with mutilations and guns arguably having an interpersonal component), individuals high in psychopathy may experience difficulties in socialization. Social contingencies inherent in disapproval from parents, teachers, and other authority sources and in expressions of distress from victims would not serve their function and the individual high in psychopathy would be likely to present with socially deviant behaviors harmful to others.

3d. Context

Temperamental variables are thought to interact with contextual influences in the development and maladaptive expression of psychopathy (Farrington, Ullrich, & Salekin, 2010). Individuals high in psychopathy have been argued to be less sensitive to social stimuli and to require more consistent and effective parenting to inhibit maladaptive behavioral expressions (Frick & White, 2008). Consistent with this hypothesis, use of positive parenting has been inversely related to psychopathic traits among youth over a four-year period (Frick, Kimonis, Dandreaux, & Farrell, 2003). Relationships between parenting behaviors and psychopathy appear to be reciprocal, with negative parenting predicting increase in psychopathy and higher psychopathy predicting increase in negative parenting over a one year period among children (Hawes, Dadds, Frost, & Hasking, 2011).

4. Perspective Taking

Perspective taking has been defined as the ability to understand others internal states and motivations (cognitive perspective taking i.e. mentalizing) and the ability to share others' internal experience (affective perspective taking, i.e. empathy; Feshbach & Feshbach, 1969; Singer & Fehr, 2005). Affective perspective taking has been argued to be responsible for sharing others' distress, thereby mediating responding showing concern for others (Singer & Fehr, 2005). Scholars from a number of disciplines, including applied clinical psychology, sociobiology, and applied behavioral analysis, have studied perspective taking due its apparently vital function in human's largely social environment. Pro-social behavior and reciprocity have been hypothesized to be shaped by affective perspective taking (de Waal, 2008) and to evolve due to increasing adaptive sharing of resources among humans (Alexander, 1974). Understanding

perspective taking may lead to more accurate conceptualizations of human social interactions in general.

Following demonstrations of the existence of “mirror neurons” among macaque monkeys (neurons in the premotor cortex responding similarly when observing and performing actions) scholars have begun to consider the potential that an analogous system exists in humans (Gallese & Goldman, 1998). Gallese and Goldman (1998) note that scholars have argued that perspective taking may arise through actually sharing others’ neurobiological activation to some extent (with the alternative theoretical explanation that individuals use logic to infer mental states). Emerging studies have evaluated this hypothesis. Scholars demonstrated that viewing images of others’ in painful situations has been associated with activation of brain regions associated with pain processing using fMRI technology (Jackson, Meltzoff & Decety, 2005). Additionally, individuals with greater difficulties in mixing up own vs. others’ tactile sensations reported greater affective perspective taking (Banissy & Ward, 2007). From the neurobiological point of view, perspective taking does appear to be associated with sharing the experiences of others to some extent (Singer & Fehr, 2005).

Scholars have considered perspective taking from a contextual behaviorist framework. Perspective taking can be viewed using simple operant behavioral principles, where the behavior of taking the cognitive and affective perspectives of others has been reinforced within the social environment shaping engagement in this behavior. Recently, relational frame theory (RFT; Hayes, Barnes-Holmes, & Roche, 2001a) offered a behaviorist account of private verbal behavior which some have used to discuss perspective taking. RFT conceptualizes perspective taking in terms of “deictic frames,” rules specifying relations from the point of view of the individual; I/you, now/then, and here/there (Barnes-Holmes, McHugh, & Barnes-Holmes, 2004;

Hayes, Fox, Gifford, Wilson, Barnes- Holmes, & Healy, 2001b). These frames are thought to develop through social reinforcement and to be able to produce functionally similar responses despite widely varied presentation (Barnes-Holmes et al., 2004). Thus, I/you serves to specify an arbitrary relationship, similar to “bigger then” in which “I” am always I and “you” are always other regardless of variability in other properties of either of us (Hayes et al., 2001b).

4a. Function of Perspective Taking

Scholars have hypothesized that perspective taking underlies engagement in pro-social behavior (Singer & Fehr, 2005). Affective perspective taking has been related to pro-social behavior within the literature (Eisenberg & Miller, 1987). Children low in cognitive perspective taking (bottom 20%) have been found to be less likely to exhibit spontaneous pro-social behavior (e.g. helping experimenter pick up dropped pencils; effect size $D = 1.05$; Knafo, Steinberg, & Goldner, 2011). Both increasing perspective taking through instructions to take on another’s point of view and perspective taking questionnaire scores have been found to be positively associated with allocation of resources among undergraduates (raffle tickets for \$30 gift certificate of individual’s choice; Batson et al., 1995). Given the positive associations between perspective taking and pro-social behavior (Batson et al., 1995; Eisenberg & Miller, 1987; Knafo et al., 2011) it is likely that perspective taking may function to enhance interpersonal relationships.

Researchers have further explored relationships between low perspective taking and psychological dysfunction, particularly in association with difficulties in which interpersonal functioning is particularly disturbed. Individuals with autism spectrum disorders (ASD) notably

share difficulties in understanding and (by extension) sharing the mental states of others. High functioning adults with Autism and Aspergers have been found to obtain perspective taking scores that were less than half of those obtained by controls (mean 20.4 vs. 42.1) on the *Empathy Quotient* questionnaire; Baron-Cohen & Wheelwright, 2004). Schizophrenic individuals have similarly demonstrated greater difficulties in inferring the perspectives of others compared to controls (mean accuracy .70 schizophrenics vs. .92 controls), which remained significant after IQ was controlled for in analyses (Villatte, Monestès, McHugh, i Baqué & Loas, 2010). Child perspective taking ability (assessed using a story telling task taking on different characters' points of view) was found to differentiate among adults who developed psychotic disorders from those whom remained free of psychopathology, even after IQ was controlled for in a prospective examination (Schiffman et al., 2004). However, lower childhood perspective taking appeared to be associated with subsequent development of psychopathology in general, rather than specifically related to psychotic disorders (Schiffman et al., 2004).

5. Perspective Taking Dysfunction in Psychopathy

Given that the development of psychopathy may be underpinned by a deficit in sharing and understanding the distress of others (Blair, 2001; Blair et al., 2006; Dengerink & Bertilson, 1975; Hare, 1993) researchers have explored relationships between perspective taking and psychopathy. Psychopathy has been predictive of deficits in recognizing fearful facial expressions (Iria & Barbosa, 2009) and identifying fear and sadness in vocal tone (Blair et al., 2002) among offenders. Psychopathic sex offenders tended to rate others similarly to themselves on psychopathy (moderate correlation $r = .59$ between self-report psychopathy and ratings of

others' psychopathy; Mahaffey & Marcus, 2006). Perceived similarity in psychopathy (Mahaffey & Marcus, 2006) may reflect a failure in cognitive perspective taking and a difficulty seeing differences between the self and others. Offenders high in psychopathy appear to demonstrate some perspective taking deficits, particularly when expressions of distress are considered.

5a. Psychopathy and Perspective Taking in Non-Forensic Samples

Mullins-Nelson, Salekin, and Leistico (2006) administered survey measures of psychopathy (*Psychopathic Personality Inventory-Short Form*, PPI-SF; Lilienfeld, 2004) and cognitive and affective perspective taking and administered an emotion recognition task to 174 undergraduates ($\approx 75\%$ female). Psychopathy was inversely related to self-report affective perspective taking ($r = -.41$), but not to cognitive perspective taking or the behavioral emotion recognition task (in images of faces and voice recordings; Mullins-Nelson et al., 2006). When components were examined separately, behavioral tendency component of psychopathy were negatively associated with both cognitive ($r = -.28$) and affective ($r = -.40$) self-reports of perspective taking and with behavioral task facial affect recognition ($r = -.18$). Interestingly, the interpersonal/affective psychopathy component was *positively* related to cognitive perspective taking ($r = .16$), with the relationship holding for males only when genders were examined separately ($r = .31$; Mullins-Nelson et al., 2006). Negative relationships between affective perspective taking and psychopathy were consistent with extant conceptualizations (Blair, 2001; Blair et al., 2006; Hare, 1993). Differences among behavioral tendency and interpersonal and affective components require further consideration; potentially psychopathic behavioral tendencies may have shown relationships due to perspective taking serving as a mechanism of

dysfunction underlying maladaptive behavioral expressions. Positive relationship between affective perspective taking and psychopathy among males requires further examination.

Ali and Chamorro-Premuzic's (2010) explored relationships between self-report psychopathy (LSRP, Levenson et al., 1995), a broad empathy questionnaire (including both cognitive and affective aspects, *Empathy Quotient*, EQ; Baron-Cohen & Wheelwright, 2004), and behavioral recognition of vocal and facial expressions of affect among 112 college students (\approx 82% female). Both Factor I and Factor II psychopathy were negatively associated with self-reported empathy ($r = -.47$, Factor I & $r = -.40$, Factor II). Factor I psychopathy demonstrated inverse relationships with recognition of affect in whole faces ($r = -.26$), eye regions ($r = -.24$), and vocal tone ($r = -.24$), although, when recognition of positive, negative, and neutral emotions were examined separately, only associations with neutral facial ($r = -.10$), eye ($r = -.29$), and vocal tone ($r = -.30$) expressions remained significant. Factor II psychopathy was similarly inversely associated with recognition of affect in eye expressions ($r = -.21$) and in positive eye expressions ($r = -.30$) when types of emotions were examined separately (Ali & Chamorro-Premuzic, 2010). Data provided some support for the existence of a negative association between psychopathy and cognitive and affective perspective taking.

Although examinations of relationships between psychopathy and perspective taking among non-forensic samples are a new area of research, findings from existing studies using undergraduates (Ali & Chamorro-Premuzic, 2010; Mullins-Nelson et al., 2006) show expected negative associations between psychopathy and cognitive and affective perspective taking. Data are consistent with deficits in cognitive perspective taking (Blair et al., 2002; Iria & Barbosa, 2009; Mahaffey & Marcus, 2006) and behaviors indicating lack of affective perspective taking (Dengerink & Bertilson, 1975; Patrick et al., 1993) associated with psychopathy in offender

samples. Overall, psychopathy appears to be negatively associated with affective and cognitive perspective taking.

5b. Perspective Taking and Aggression

Aggressive behavior may serve a number of functions; potentially serving as a means to escape an aversive, to obtain tangible rewards, to acquire status within certain communities, etc. (Crick & Dodge, 1996; Fontaine, 2007; Kazdin, 2011) Consequences that may serve both appetitive (obtaining compliance or tangibles, as in instrumental aggression; Crick & Dodge, 1996) and aversive (social rejection; Parker & Asher, 1987) functions for particular individuals have been tied to engagement in aggression. Aversive consequences, such as experiencing distress upon harming another or upon receiving feedback indicative of social rejection may be contingent upon the ability to take the cognitive and affective perspective of others. Relationships between perspective taking and aggression have been explored.

5c. Perspective Taking Deficits and Aggression in Young Adults

Richardson, Hammock, Smith, Gardner, and Signo (1994) explored associations between perspective taking and interpersonal interactions. In the first study 189 undergraduates ($\approx 50\%$ female) completed questionnaires assessing cognitive and affective perspective taking (IRI; Davis, 1980), aggression, and dealing with interpersonal conflict (ex: by problem solving, obliging, avoiding). Cognitive perspective taking was positively associated with adaptive conflict resolution strategies (r 's ranging from .24 to .32) and (interestingly) physical aggression ($r =$

.18). Inverse relationships were found between cognitive perspective taking and indirect aggression ($r = -.25$), verbal aggression ($r = -.32$), irritability ($r = -.22$), and tendency to resolve conflict through aggression ($r = -.27$). Affective perspective taking showed a positive association with problem solving in response to conflict with a friend ($r = .22$) and negative relationships to physical aggression ($r = -.29$), although not indirect or verbal aggression.

In a follow-up study researchers had 40 male undergraduates participate in a reaction time task ostensibly competing with another individual. Obtaining the slower reaction time resulted in reception of a shock with intensity set by the winner (competitor did not exist and competitors shocks were set by experimenter). Participants were randomly assigned to either receive or not receive an instruction that taking on the perspective of the supposed competitor would help in the task. Being in the perspective taking condition was associated with setting lower initial shocks, although not when retaliation by “competitor” was considered (Richardson et al., 1994).

Relationships between perspective taking and engagement in maladaptive behavior have been explored in a college student sample. Loudin, Loukas, and Robinson (2003) explored the relationship between self-reported perspective taking and peer nominations of engagement in relational aggression among 300 undergraduates ($\approx 68\%$ female). Researchers examined zero order (partial) correlations between variables. Cognitive perspective taking was negatively related to relational aggression among both males ($r = -.27$) and females ($r = -.28$) and overt aggression among females ($r = -.28$) only. Affective perspective taking was negatively related to overt aggression among females only ($r = -.16$). Cognitive perspective taking was found to predict relational aggression in regression analyses (Beta = $-.20$), although the addition of cognitive and affective perspective taking explained only an additional 4% of the variance in

relational aggression over what was explained by age, gender, and overt aggression (Loudin et al., 2003). However, given the association between overt and relational aggression found by Loudin and colleagues ($r = .46$), entry of overt aggression prior to cognitive and affective perspective taking in analyses decreased the amount of variance in relational aggression that could be explained by perspective taking. Furthermore, as overt and relational aggression may represent topographically distinct presentations of functionally similar behaviors, using one form to explain another may not have been warranted.

Overall, researchers have demonstrated negative relationships between perspective taking and aggression among college students. Cognitive perspective taking has been inversely associated with social aggression among undergraduates (Loudin et al., 2003; Richardson et al., 1994). Findings on physical aggression have been mixed, with researchers finding negative relationships between overt aggression and affective perspective taking (Richardson et al., 1994) and others finding that this relationship holds among females only (Loudin et al., 2003). However, experimentally increasing probability of cognitive perspective taking behavior was associated with lower behavioral expression of aggression (though retaliation against harm by others appeared to have a stronger effect; Richardson et al., 1994). Interestingly, Richardson and colleagues (1994) found a small positive relationship between cognitive perspective taking and physical aggression. Potentially, this finding could be explained by participants using understanding of others to implement physical aggression in a goal directed manner, although only conjectures can be made without further data.

5d. Exploring Perspective Taking Deficits as a Mediator between Psychopathy and Dysfunction

Scholars have argued that individuals high in psychopathy engage in callous and aggressive behavior due to a deficit in affective responding to the distress cues of others (Blair, 2001; Blair et al., 2006). Psychopathy has been associated with engagement in socially aggressive behaviors (Coyne et al., 2010; Czar et al., 2011; Forrest et al., 2005; Schmeelk et al., 2008; Seibert et al., 2010; Warren & Calrbour, 2009) and inversely related to perspective taking (Ali & Chamorro-Premuzic, 2010; Mullins-Nelson et al., 2006) among undergraduates. College student perspective taking has been negatively related to social aggression (Loudin et al., 2003; Richardson et al., 1994).

The purpose of the present investigation is to examine whether perspective taking serves as a mediator of the relationship between psychopathy and social aggression. A large sample of undergraduates will provide demographic information and complete measures of psychopathy, perspective taking, and social and physical aggression. Psychopathy is expected to demonstrate positive relationships to social aggression and negative relationships to perspective taking ability. Perspective taking ability is expected to be inversely related to social aggression and to account for the relationship between psychopathy and social aggression. Mediation analyses will be used to assess for the role of perspective taking as a mediator of the relationship between psychopathy and social aggression.

II. METHODS

1. Measures

Demographic information on participant age, sex, race/ethnicity, and approximate socioeconomic status (SES; assessed using estimated parental income, occupation, and education level) was collected (Appendix B).

Given the socially undesirable nature of constructs of psychopathy and aggression social desirability bias in responding was measured. The *Marlowe-Crowne Social Desirability Scale* (MCSDS; Crowne & Marlowe, 1960) is a frequently used 33-item measure with a true/false response format designed to measure social desirability within community samples (Reynolds, 1982). *Marlowe-Crowne Social Desirability Scale-Short Form* (MCSDS-SF; Reynolds, 1982; Appendix B) was developed to provide a brief psychometrically sound assessment of social desirability. Based on the 33 item MCSDS (Crowne & Marlow, 1960), the MCSDS-SF consists of 13 items in a true/false response format (Reynolds, 1982). MCSDS-SF has demonstrated adequate internal consistency reliability ($r_{KR-20} = .76$) and a strong correlation ($r = .93$) with full-length MCSDS scores (Reynolds, 1982). Similarly to the full-length instrument, higher MCSDS-SF scores have been found among individuals undergoing forensic evaluations compared to non-forensic participants (Andrews & Meyer, 2003). MCSDS-SF internal consistency reliability Cronbach's α was found to be .67 in the present sample.

Levenson's Self Report Psychopathy Scale (LSRPS; Levenson, Kiehl, & Fitzpatrick, 1995; Appendix B) is a 26 item questionnaire with a four point response format based on the forensic gold standard *Psychopathy Checklist-Revised* (PCL-R; Hare, 2003) and developed to assess psychopathy within non-forensic samples. Similarly to the PCL-R, the LSRPS provides an interpersonal/affective characteristic Factor I scale and an irresponsible/antisocial characteristic Factor II scale (Levenson et al., 1995). Adequate internal consistency has been established with α coefficients ranging from .85 to .87 (Ali & Chamorro-Premuzic, 2010; Seibert et al., 2010) being found for Factor I and α coefficients ranging from .72 to .77 found for Factor II (Ali & Chamorro-Premuzic, 2010; Seibert et al., 2010) among undergraduates. Consistent with the psychopathy literature (Grann, 2000; Schmeelk et al., 2008; Strand & Belfrage, 2005) relative to females, males have tended to obtain higher scores on the LSRP Factor I and (to a lesser extent) Factor II scales (Levenson et al., 1995). In the present sample, Cronbach's α 's were found to be .82 for LSRPS Factor I and .71 for LSRPS Factor II.

LSPRS (Levenson et al., 1995) scores have been examined in conjunction with indicators of hypothesized mechanisms of dysfunction in psychopathy. Factor I has been inversely related to recognition of facial expression ($r = -.26$) and vocal tone ($r = -.24$) affect (Ali & Chamorro-Premuzic, 2010), corresponding with the proposed perspective taking deficits. Similarly, inmates with high LSRPS scores have committed fewer omission and more passive avoidance errors compared to controls in an analogue task (Brinkley et al., 2001), evidencing greater behavioral disinhibition. Associations between LSRPS scores and hypothesized dysfunction provide support for construct validity.

Relationships between LSRPS and aggression have been explored. Factor I scores have been associated with aggressive responding in an analogue task ($r = .43$; Seibert et al., 2010),

history of engagement in violent crime among offenders ($r = .25$; Brinkley, Schmitt, Smith, & Newman, 2001), reports of greater use of coercive sexual behavior (Munoz, Khan, & Cordwell, 2010), and endorsement of proactive ($r = .45$), reactive ($r = .28$), and relational aggression ($r = .32$) questionnaire items (Siebert et al., 2010). Factor II demonstrated similar relationships to history of violent crime in offenders ($r = .14$; Brinkley et al., 2001) and endorsement of proactive ($r = .33$), reactive ($r = .36$), and relational aggression ($r = .31$; Siebert et al., 2010) self-report measures. Demonstrations of expected relationships between LSRPS and aggressive behavior (Brinkley et al., 2001; Munoz et al., 2011; Siebert et al., 2010), deficits in perspective taking (Ali & Chamorro-Premuzic, 2010), and difficulties in behavioral modulation (Brinkley, Schmitt, Smith, & Newman, 2001) associated with psychopathy (Patrick, 2010) provide support for the construct validity of the LSRPS.

Self-Report of Aggression and Social Behavior (SRASB; Morales & Crick, 1999, Appendix B) is a 56-item questionnaire with a seven-point response format broadly assessing pro and antisocial behavior within relationships. SRASB consists of Relational Aggression, Physical Aggression, Physical Victimization, Relational Victimization, Prosocial Behavior, and Exclusivity scales, which in turn consist of subscales. For the purpose of this examination, only the 16-item SRASB Relational Aggression scale was used. SRASB Relational Aggression scale asked about engagement in socially aggressive behaviors directed primarily at friends and romantic partners. Proactive, Reactive, and Cross-Gender Relational Aggression subscales provided information on the manner in which the individual aggressed (Morales & Crick, 1999; Linder, Crick, & Collins, 2002). Good internal consistency reliability has been found for the SRASB Relational Aggression Total scale ($\alpha = .87$ Miller & Lynam, 2003; $\alpha = .83$; Murray-Close et al., 2010, $\alpha = .82$, Ostrov, Hart, Kamper, & Goldeski, 2011) and acceptable internal

consistency for the SRASB Reactive Relational Aggression ($\alpha = .72$) subscale, with lower internal consistency for the SRASB Proactive ($\alpha = .69$) and SRASB Cross Gender Relational Aggression subscales ($\alpha = .66$; Murray-Close et al., 2010) in prior examinations. Subscale scores have been found to be relatively stable over time, with correlations of .66 for SRASB Total Relational Aggression and .65 for SRASB Reactive Relational Aggression, .59 for SRASB Proactive Relational Aggression, and .68 for SRASB Cross Gender Relational Aggression subscale scores over about eight months ($M = 8$, range 6-9; Murray-Close et al., 2010). Internal consistency reliability in the present sample was as follows; SRASB Proactive Relational Aggression $\alpha = .81$, SRASB Reactive Relational Aggression $\alpha = .79$, SRASB Cross Gender Relational Aggression $\alpha = .75$, SRASB Relational Aggression Total $\alpha = .89$.

SRASB Proactive and Reactive Relational Aggression subscales have been correlated with anger and hostility, with SRASB Reactive Relational Aggression demonstrating theoretically consistent stronger relationships, compared to SRASB Proactive Relational Aggression (Murray-Close et al., 2010). Furthermore, the SRASB Reactive Relational Aggression subscale was positively associated with self-reported tendency to attribute hostile intent to others (thus contributing to responding in a reactively aggressive manner; Murray-Close et al., 2010). Scores on a variable created by combining the SRASB Relational Aggression scale with another self-report measure of social aggression have been positively correlated with scores on a self-report measure of psychopathy ($r = .31$; Schmeelk et al., 2008). Consistently, the SRASB Relational Aggression scale has been found to be associated with LSRPS Factor I ($r = .32$) and Factor II ($r = .31$) psychopathy scales (Siebert et al., 2010). Conceptually coherent relationships between the SRASB Relational Aggression Scale and other measures of aggression

(Murray-Close et al., 2010) and psychopathy (Schmeelk et al., 2008; Siebert et al., 2010) supported the validity of this instrument.

Indirect Aggression Scale-Aggressor (IAS-A; Forest, Eatough, & Shelvin, 2005; Appendix B) is a 25-item measure designed to assess the frequency of perpetration of social aggression among adults over a twelve-month period using a five-point response format. Aggressor (IAS-A) and Target (IAS-T) versions were developed to assess both perpetration and victimization; only the Aggressor form will be used in the present study. IAS-A provides three scales: Malicious Humor, Guilt Induction, and Social Exclusion, allowing for detailed assessment of aggression (Forrest et al., 2005). Good internal consistency reliability has been found for the Malicious Humor $\alpha = .84$, Guilt Induction $\alpha = .81$, and Social Exclusion $\alpha = .82$ scales (Forrest et al., 2005). Internal consistency reliability in the present sample was as follows; Malicious Humor $\alpha = .88$, Guilt Induction $\alpha = .81$, and Social Exclusion $\alpha = .89$.

Researchers have obtained positively skewed IAS data (Forrest et al., 2005; Coyne, Manning, Ringer, & Bailey, 2007) and some (Coyne & Thomas, 2008) have chosen to remove instructions to provide responses for aggression used over the past twelve months only. Others (Forrest et al., 2005; Coyne et al., 2007) used a logarithmic transformation to normalize data. Findings of positively skewed data are not surprising, given the exceedingly common use of social aggression (Ellis et al., 2009; Goldstein et al., 2008). We retained the original scale instructions asking for reports of aggression over the past twelve months. IAS scale scores did not suggest problematic skew or kurtosis in the present sample (Table 2).

Associations between IAS scores and psychopathy have been explored. IAS demonstrated positive relationships with psychopathy, with associations ranging from $r = .26$ to r

= .52 between the IAS scales and a self-report measure of psychopathy (Warren & Clarbour, 2009). Coyne and Thomas (2008) similarly obtained correlations ranging from $r = .22$ to $r = .44$ between IAS scales and LSRPS Factor I and correlations ranging between $r = .27$ and $r = .36$ between IAS scales and LSRPS Factor II. IAS total scores were also related to scores on a questionnaire measuring direct aggression ($r = .39$; Coyne & Thomas, 2008). While IAS is a relatively new measurement instrument, findings of theoretically consistent positive relationships between IAS and psychopathy (Coyne & Thomas, 2009; Warren & Clarbour, 2009) and direct aggression (Coyne & Thomas, 2008) provided convergent validity support for this measure.

Like Morales and Crick's (1999) SRASB Relational Aggression, IAS (Forrest et al., 2005) assesses self-reported social aggression; however, the two measures cover different aspects of this construct. SRASB Relational Aggression focuses on perpetration within primarily close interpersonal relationships (as noted by Schmeelk et al., 2008), provides Proactive, Reactive, and Cross Gender subscales, and consists of a sixteen item scale, which is part of a broader assessment instrument. IAS (Forrest et al., 2005), on the other hand, does not specify the relationship between target and perpetrator and assesses aggression occurring over the past twelve months, providing a broader group of potential targets and more constrained time period. Furthermore, the IAS was developed as a stand-alone instrument with a targeted focus on social aggression, providing a more comprehensive assessment than the SRASB. Using the briefer more widely used SRASB Relational Aggression scale and the newer IAS provided a comprehensive assessment of social aggression.

Aggression Questionnaire (AQ; Buss & Perry, 1992, Appendix B) is a 29-item measure with a five-point response format providing psychometrically sound assessment of aggressive attitudes and behavior (Buss & Perry, 1992; Eckhardt, Norlander, & Deffenbacher, 2004). AQ

provided Verbal Aggression, Physical Aggression, Anger, and Hostility scales as well as a total score (Buss & Perry, 1992). Good to adequate internal consistency reliability has been demonstrated for the AQ Total ($\alpha = .89$) and Verbal Aggression ($\alpha = .70-.72$), Physical Aggression ($\alpha = .75-.85$), Anger ($\alpha = .80-.83$), and Hostility ($\alpha = .77-.82$) scale scores (Buss & Perry, 1992; Harris, 1997). AQ scores have been found to be fairly stable over a seven month period, with scale score correlations ranging from $r = .67$ to $r = .82$ (Harris, 1997). Eckhard, Norlander, and Deffenbacher (2004) review the relevant literature and argue that strong psychometric support for the AQ has been demonstrated. Internal consistency reliability in the present sample was as follows; AQ Physical Aggression $\alpha = .87$, AQ Verbal Aggression $\alpha = .78$, AQ Anger $\alpha = .80$, AQ Hostility $\alpha = .86$, AQ Total $\alpha = .92$.

AQ scores have been correlated with other aggression questionnaires (Archer & Webb, 2006; Harris, 1997), self-report engagement in aggressive driving (Smith, Waterman, & Ward, 2006), self-reports of bullying among male inmates (Palme & Thakordas, 2005), and self-report psychopathy scores (Schmeelk et al., 2008). Violent offenders obtained higher AQ scale scores compared to non-violent offenders, undergraduates, and community members (Smith et al., 2006). AQ scores predicted greater use of extreme (highest level) shocks in a behavioral aggression paradigm among intoxicated (but not sober) participants, although the relationship did not hold when participants themselves received high levels of shock provocation (Miller, Parrott, & Giancola, 2009). Relationships between AQ scores and self-reported (Archer & Webb, 2006; Harris, 1997; Palme & Thakordas, 2005; Smith et al., 2006) and behavioral (Miller et al., 2009) measures of aggression provide support for the validity of this measure.

Interpersonal Reactivity Index (IRI; Davis, 1980; 1983, Appendix B) is a 28-item measure with a five-point response format developed to provide a broad assessment of

perspective taking (Davis, 1980; 1983, Appendix B). IRI consists of four seven item scales; Fantasy (FS; identification with characters in fiction), Personal Distress (PD; experience of discomfort when something negative happening to another, without feeling concern for them), Perspective Taking (PT; theory of mind), and Empathic Concern (EC; distress and concern about the suffering of others; Davis, 1983). Adequate internal consistency reliabilities have been found for the Perspective Taking ($\alpha = .75-.79$), Empathic Concern ($\alpha = .70-.80$), Fantasy ($\alpha = .75-.82$), and Personal Distress ($\alpha = .75-.78$) IRI scales, as well as for the total IRI score ($\alpha = .77$; Davis, 1980; Mullins-Nelson et al., 2006; Pulos, Elison, & Lennon, 2004). IRI scales have furthermore demonstrated test-retest reliabilities ranging from .61 to .81 over a period of time ranging from 60 to 75 days (Davis, 1980). Internal consistency reliability in the present sample was as follows; IRI Fantasy $\alpha = .80$, IRI Personal Distress $\alpha = .68$, IRI Empathic Concern $\alpha = .72$, IRI Perspective Taking $\alpha = .73$, IRI Total $\alpha = .82$.

IRI has been used in a number of studies. Higher scores on IRI Fantasy have been correlated with laughing when seeing another laugh among schizophrenics (Haker & Rossler, 2009), providing support for construct validity. Helpline volunteers obtained higher Empathic Concern, Perspective Taking, and Total IRI scores compared to non-volunteers (Paterson, Reniers, & Vollm, 2009), individuals with Asperger's obtained lower scores than controls on Perspective Taking and Fantasy (Rogers, Dziobek, Hassenstab, Wolf, & Convit, 2007), and schizophrenics demonstrated lower IRI Perspective Taking and behavioral mimicry of smiling and laughing compared to controls (Haker & Rossler, 2009). Findings of theoretically congruent group differences provide support for the validity of the IRI. Furthermore Empathic Concern scores have been negatively related to self-report psychopathy (Mullins-Nelson et al., 2006), upholding construct validity.

2. Participants

Data was collected from 439 undergraduates. A sample size greater than 400 ensured that estimation could proceed even if multivariate normality was violated (Hox & Bechger, 1998) and allowed for minimum 10 participants per parameter estimated (Kline, 2010). Of these 62.9% identified as female, 37.1% identified as male. Racial/ethnic composition was as follows: 15.9% Asian/Asian American, 23.2% Black/African American, 0.7% Biracial, 1.6% Latino/Hispanic, 0.5% Native American, 0.2% Other, 57.9% White/Caucasian. Maternal educational attainment had a mean of 15.04 years with a standard deviation of 2.38, paternal educational attainment had a mean of 15.57 years with a standard deviation of 4.91. Descriptive statistics for continuous demographic variables are presented in Table 1, Appendix C.

3. Procedure

Participants were recruited using the *Psychology Study Participant Manager* (PSMP) system and class announcements. Data was collected anonymously and students received extra credit for their participation. Participants viewed the letter of informed consent (Appendix A) and completed demographic information, followed by measures of social desirability, psychopathy, perspective taking, and social and physical aggression, presented in counterbalanced order (see Appendix B for copies of all measures). Groups of participants completed paper and pencil survey packets after signing up for the study on PSPM.

III. RESULTS

1. Distribution of Major Variables of Interest

SPSS 20.0 was used for data screening and preliminary analyses. Variables were examined for skew and kurtosis. Tabachnick and Fidel (2007) noted that underestimation of variance due to kurtosis disappears in samples of over 200 participants. Kline (2010) similarly suggested that most scholars are not concerned with absolute skew indices less than 3 or kurtosis indices of less than 10. Current values (Table 2, Appendix C) did not fall into the problematic skew and kurtosis index range (Kline, 2010; Tabachnick & Fidel, 2007). Descriptive statistics for major variables of interest are presented in Table 3, Appendix C.

2. Removal of Outliers

Multivariate outliers were identified using Mahalanobis distance greater than 49.728, $p < .001$ (following Tabachnick & Fidel's 2007 suggestion). Using this criterion, four participants were identified as multivariate outliers and removed (Mahalanobis Distance = 260.31691, 195.49620, 60.60893, 51.09611) leaving 435 participants data for subsequent analyses.

Univariate outliers were identified using standardized z scores greater than 3.29 ($p < .001$; Tabachnick & Fidel, 2007) and univariate outlier scores were removed from analyses.

Using these criteria the following data were removed: household income $n = 1$, value = 1,000,000,000 ($z = 19.642$), age $n = 3$ values = 53, 35, 33 ($z = 15.52053, 7.22524, 6.30354$), SRASB Proactive Relational Aggression $n = 7$, values = 33, 30, 28, 26, 25, 24, 24 ($z = 5.27209, 4.62367, 4.19139, 3.75910, 3.54296, 3.32682, 3.32682$), SRASB Reactive Relational Aggression $n = 1$, values = 42 ($z = 4.73441$), IAS Social Exclusion $n = 3$, values = 50, 43, 36 ($z = 5.87193, 4.67024, 3.46855$), IAS Malicious Humor $n = 3$, values = 45, 45, 39 ($z = 4.86226, 4.86226, 3.86886$), IAS Guilt Induction $n = 5$, values = 25, 25, 24, 23, 23 ($z = 3.90678, 3.90678, 3.64327, 3.37975, 3.37975$), AQ Anger $n = 2$, values = 49, 47 ($z = 3.73695, 3.48085$), IRI Empathic Concern $n = 1$ value = 9 ($z = -4.07884$). Because full information maximum likelihood (FIML) was used as an estimator in primary analyses, only particular outlier scores (rather than all of the participants' data) were removed.

3. Testing for Assumptions of Structural Equation Modeling

3a. Extreme Multivariate Collinearity

Variables were assessed for collinearity. Squared multiple correlations between each variable and all others were computed using multiple regression analyses. Kline (2010) recommends that $R^2_{smc} > .90$ be used as criteria for extreme multivariate collinearity. Squared multiple correlations for variables of interest ranged from .10 to .72.

3b. Missing Data

Missing data patterns were explored. The SRASB Cross Gender Relational Aggression scale was missing 21.6% of data; however, participants were asked to respond to items only if they have been in a romantic relationship over the past year. The SRASB Total score had a similar proportion (22.3%) of missing data due to use of the SRASB Cross Gender Relational Aggression scale to calculate this score. Some students found it difficult to estimate annual income of the household where they spent the most time growing up (evidenced by “????” and “No idea” responses), potentially accounting for the missing 10.8% of this variable. Proportions of missing data for major variables of interest are presented in Table 5, Appendix C.

Generally, missing data may be ignored if it constitutes less than 5% of a variable (Kline, 2011); however, in our case three of the major variables of interest were missing more than 5% (SRASB Proactive Relational Aggression, 5.5%, SRASB Cross Gender Relational Aggression, 21.6%, and Estimated Annual Household Income 10.8%). Full information maximum likelihood estimation may be used to deal with missing data; however, this estimator assumes that data are missing at random (MAR; meaning that missing data differ from non-missing by chance, rather than systematically; Kline, 2010). Comparing participants with missing data to those without on other characteristics may be used to assess the MAR assumption (Kline, 2010). Because data missing on less than 5% of a variable has been suggested as ignorable, this assumption was tested for participants on variables where more than 5% of the data was missing (SRASB Proactive Relational Aggression, SRASB Cross Gender Relational Aggression, and Estimated Annual Household Income). Participants missing data on these variables were compared to those without missing data on demographic characteristics and other variables of interest in an analysis of variance (Table 6, Appendix C). Because participants were compared on 18 variables (excluding those used to create the missing data groups) a Bonferonni adjustment was made to

control for the number of comparisons, resulting in a critical p value of 0.003. No comparisons met this cut off and data were assumed to be missing at random.

4. Preliminary Analyses

4a. Demographic Differences

Gender differences in psychopathy, perspective taking, and social and direct aggression were examined. After a Bonferonni adjustment, LSRPS Factor I, IAS Malicious Humour, AQ Physical Aggression, IRI Fantasy, IRI Empathic Concern, and IRI Personal Distress evidenced significant gender differences ($p > .003$). Males obtained higher scores on LSRPS Factor I (Cohen's $d = 0.41$), IAS Malicious Humour (Cohen's $d = 0.32$), and AQ Physical Aggression (Cohen's $d = 0.31$), than females. Females obtained higher scores on IRI Fantasy (Cohen's $d = 0.31$), IRI Empathic Concern (Cohen's $d = 0.43$), and IRI Personal Distress (Cohen's $d = 0.38$) than males.

4b. Pearson's Bivariate Correlations

Pearson's bivariate correlations were computed for primary variables of interest. Tables 7 through 11 summarize correlational relationships. Briefly, statistically significant correlations between scales measuring social aggression ranged between $r = .54$ and $r = .74$ and correlations between scales measuring social and direct aggression ranged between $r = .22$ and $r = .57$. The following notation was used to indicate statistical significance; * $p < .05$, ** $p \leq .01$, *** $p \leq .001$.

Relationships between measures of psychopathy and social aggression ranged from $r = .20^{***}$ to $r = .45^{***}$ and between psychopathy and direct aggression ranged from $r = .28^{***}$ to $r = .55^{***}$. IRI Perspective Taking and IRI Empathic Concern performed as expected, being negatively related to measures of psychopathy (r 's ranging between $-.24^{**}$ and $-.45^{***}$) and measures of social (r 's ranging between $-.21^{***}$ and $-.34^{***}$) and direct (r 's ranging between $-.11^*$ and $-.25^{***}$) aggression. IRI Personal Distress and Fantasy scales demonstrated a surprising pattern of relationships. IRI Personal Distress was *positively* related to LSRPS Factor II ($r = .28^{***}$), and measures of social (r 's ranging from $.17^{**}$ to $.28^{***}$) and direct (r 's ranging from $.29^{***}$ to $.47^{***}$) aggression. IRI Fantasy similarly positively correlated with SRASB Reactive Relational Aggression ($r = .14^{**}$), SRASB Cross Gender Relational Aggression ($r = .19^{***}$), and AQ Hostility ($r = .16^{**}$). As prior examinations of relationships between psychopathy, perspective taking, and aggression have typically used IRI Empathic Concern and Perspective Taking, we focused on these scales in subsequent analyses.

5. Primary Analyses

Structural regression analyses assessed the role of perspective taking as a potential partial mediator of the relationship between psychopathy and social aggression. Because sex, SES, and social desirability influence on psychopathy, perspective taking, and social aggression was expected, sex, SES, and a measure of social desirability were used as covariates. Mplus 6 was used for all structural equation analyses. Variance/covariance structures (rather than means) were analyzed. Factors were scaled by constraining one indicator per factor to one (unit loading identification [ULI] constraint).

5a. Measurement Model

Confirmatory factor analysis was used to assess measurement model fit prior to specifying relationships (following Kline's 2010 recommendation). Fit of structural equation models may be assessed through examining exact (χ^2) and approximate model fit indices. The exact χ^2 test assesses whether there is a reliable difference between the observed and predicted covariance matrix. Brown (2006) argues that the χ^2 is strongly influenced by sample size and will generally be statistically significant in larger samples. Approximate fit indices provide alternative estimates of model fit. Root Mean Square Error of Approximation (RMSEA) examines discrepancies between the observed and specified model covariances using a non-central χ^2 distribution (Kline, 2010). The Bentler Comparative Fit Index (CFI) measures the extent to which the specified model improves upon fit compared to a model in which variables are independent. Standardized Root Mean Square Residual (SRMR) compares expected and observed residual covariances, with smaller values indicating less discrepancy. Reporting multiple fit indices is generally thought to provide a more complete picture of model fit.

Although the effectiveness of fit indices has been explored in simulation studies, their performance depends on model complexity, data robustness (e.g. normality, variable independence), and sample size (Hu & Bentler, 1999). Overall, fit index cut-offs may be more accurately thought of as rules of thumb than empirically derived standards. Kline (2010) suggested that RMSEA values $\leq .05$ indicate good fit, whereas Schermelleh-Engel, Moosbrugger, and Muller (2003) suggest RMSEA values should fall between .05 and .08.

Schermelleh-Engel (2003) and colleagues argue that TLI and CFI values $\geq .95$ as adequate and $\geq .97$ as good. Kline (2010) suggests that SRMR values $\leq .08$ indicate acceptable model fit.

SRMR was found to be most sensitive to misspecified latent structures and RMSEA, TLI, and CFI to misspecified factor loadings in data simulations (Hu & Bentler, 1999). Hu & Bentler (1999) evaluated combinations of fit indices decreasing Type I and Type II errors with varied model complexity, deviation from normality, and sample size. Hu and Bentler (1999) found that combinations of TLI greater than or equal to .95 with SRMR less than or equal to .10, CFI greater than or equal to .96 with SRMR less than or equal to .10, or RMSEA less than or equal to .06 with SRMR less than or equal to .10 performed best for samples comparable to ours. Scholars suggested cut offs of approximately .95 for TLI and CFI, .08 for SRMR, and .06 for RMSEA be used to evaluate model fit, but noted that fit index performance may vary (Hu & Bentler, 1999).

First, a model in which Factor I and Factor II of LSRPS were caused by a latent factor of psychopathy, IAS-A Social Exclusion, IAS-A Malicious Humour, IAS-A Guilt Induction, SRASB Proactive, SRASB Reactive, and SRASB Cross Gender to be caused by a latent factor of social aggression, IRI Empathic Concern and IRI Perspective Taking by a latent factor of perspective taking, and Maternal Educational Attainment and Paternal Educational Attainment by a latent SES factor (Measurement Model 1). Given unusual relationships between IRI Personal Distress and IRI Fantasy with other variables, only IRI Empathic Concern and IRI Perspective Taking were retained for the perspective taking factor. Model fit was not ideal ($\chi^2 = 214.65$, $df = 48$, $p < .001$, $RMSEA = .09$ [90% CI .08-.10] p $RMSEA \leq .05 < .0001$, $CFI = .92$, $TLI = .90$, $SRMR = .04$).

Following Kline's (2010) suggestion, indicator loadings on specified factors were examined, finding that all indicators loaded well above the suggested cut-off of .20 on their respective factors. Modification indices (which provide an estimate of the extent to which freeing a parameter will decrease exact model χ^2) were examined. Allowing the error terms of SRASB subscales to correlate would allow for substantial decreases in the χ^2 value and makes sense considering that respondents may have taken directions to answer only particular SRASB questions to refer to the entire questionnaire. Error terms of SRASB scales were allowed to correlate in Measurement Model 2. Measurement Model 2 provided better fit than Model 1 ($\chi^2 = 110.09$, $df = 45$, $p < .001$, $RMSEA = .06$ [90% CI .04-.07], p $RMSEA \leq .05 = .17$, $CFI = .97$, $TLI = .96$, $SRMR = .04$. $RMSEA$, TLI , CFI , and $SRMR$ suggested good fit and for Measurement Model 2.

Given that a number of large modification indices involved the SRASB Cross Gender and that this scale was missing 21.6% of data, this scale was removed in Measurement Model 3. Errors of SRASB Proactive and SRASB Reactive were allowed to correlate. Measurement Model 3 provided better fit for the data than Measurement Model 2 ($\chi^2 = 91.28$, $df = 37$, $p < .001$, $RMSEA = .06$ [90% CI .04-.07], p $RMSEA \leq .05 = .18$, $CFI = .97$, $TLI = .96$, $SRMR = .03$. Overall, fit indices of Measurement Model 3 generally suggested adequate fit (although the upper limit of the $RMSEA$ 90% confidence interval fell just outside what some have argued to be a desirable $\leq .05$ range) and the model was retained.

5b. Testing Perspective Taking as a Mediator of the Relationship Between Psychopathy and Social Aggression

A structural regression model in which psychopathy predicted perspective taking and social aggression and perspective taking predicted social aggression, with gender, SES, and social desirability served as covariates was specified. Model fit statistics were as follows; $\chi^2 = 142.74$, $df = 53$, $p < .001$, $RMSEA = .06$ [90% CI .05-.08], p $RMSEA \leq .05 = .041$, $CFI = .96$, $TLI = .94$, $SRMR = .04$. Standardized path coefficients between psychopathy and SES ($p = .53$), perspective taking and sex ($p = .20$) and social desirability ($p = .95$), and social aggression and sex ($p = .49$) and SES ($p = .66$) were non significant and paths were removed to create Structural Regression Model 1. Model fit statistics were as follows; $\chi^2 = 146.93$, $df = 58$, $p < .001$, $RMSEA = .06$ [90% CI .05-.07], p $RMSEA \leq .05 = .083$, $CFI = .96$, $TLI = .94$, $SRMR = .05$. $RMSEA$, CFI , and $SRMR$ indicated adequate fit. Although TLI was slightly lower than desirable, other indices generally suggested adequate fit. Psychopathy demonstrated a negative effect on perspective taking ($-.73^{***}$) and a positive effect social aggression ($.80^{***}$). Perspective taking was found to have a non-significant positive relationship to social aggression ($.16$). Psychopathy's indirect effect on social aggression through perspective taking was found to be small and non-significant ($-.12$). Overall, the hypothesis that perspective taking mediated the relationship between psychopathy and social aggression was not supported.

5c. Relationships Between Perspective Taking, Psychopathy, and Direct Aggression.

Assessment of perspective taking as a partial mediator of the relationship between psychopathy and direct (verbal and physical) aggression was attempted. A measurement model with psychopathy measured by LSRPS Factor I and LSRPS Factor II, perspective-taking measured by IRI Perspective Taking and IRI Empathic Concern, SES was measured by Maternal

and Paternal Educational Attainment, and direct aggression measured by AQ Physical and AQ Verbal scales was proposed. Model fit statistics were as follows; $\chi^2 = 30.93$, $df = 6$, $p < .001$, RMSEA = .10[90% CI .07-.13], p RMSEA $\leq .05 = .009$, CFI = .96, TLI = .90, SRMR = .03. However, the latent variable covariance matrix for this model was not positive definite (a requirement for structural equation analyses). Potential causes of this problem were explored. No correlations greater than one or negative error variances indicative of Heywood cases (logically inadmissible values) were discovered and the model was empirically over-identified. Further examination revealed that a negative eigenvalue was associated with the covariance matrix, resulting in a non-positive definite matrix and problematic for the subsequent latent covariance structure analyses. This indicated that the model may have been severely misspecified. Closer examination revealed that LSRPS Factor I and Factor II (indicators of psychopathy) were correlated at .38, but that LSRPS Factor I was correlated at .40 with AQ Physical Aggression (an indicator of direct aggression) and LSRPS Factor II was correlated at .46 with AQ Physical Aggression and .41 with AQ Verbal Aggression. That is, indicators of psychopathy demonstrated higher correlations with indicators of direct aggression than with each other. Use of structural equation modeling to assess the relationship between psychopathy and direct aggression was abandoned.

Relationships between psychopathy, perspective taking, and physical and verbal aggression were explored using hierarchical linear regression analyses. Regression based imputation was used to estimate missing data. First, a hierarchical linear regression was performed to explore the influence of psychopathy and perspective taking on physical aggression. Sex, Maternal and Paternal Educational Attainment (providing a proxy measurement of SES), and a measure of social desirability were entered in the first step, LSRPS Factor I and

Factor II were entered in the second step, IRI Empathic Concern and Perspective Taking were entered in the third step, and interaction terms between IRI Perspective Taking and LSRPS Factor I and Factor II and IRI Empathic Concern and LSRPS Factor I and Factor II were entered in the fourth step to predict AQ Physical Aggression. Sex, SES, and social desirability bias accounted for 6.4% of the variance in physical aggression. Factor I and Factor I psychopathy accounted for an additional 23.7% of the variability. Perspective taking variables accounted for just 0.06% of the variance in physical aggression after other variables were controlled. Interactions between perspective taking and psychopathy scales accounted for an additional 2% of the variability. Male sex ($\beta = .11^{***}$) and maternal education ($\beta = .06^{***}$) were positively and paternal education ($\beta = -.18^{***}$) was negatively related to physical aggression. LSRPS Factor I ($\beta = .22^{***}$) and LSRPS Factor II ($\beta = .36^{***}$) were positively related to physical aggression. IRI Perspective Taking ($\beta = .07^{***}$) was positively and IRI Empathic Concern ($\beta = -.09^{***}$) negatively related to physical aggression. Interactions between IRI Perspective Taking and LSRPS Factor II ($\beta = -.06^{***}$) and IRI Empathic Concern and LSRPS Factor I ($\beta = -.14^{***}$) were negatively related to physical aggression. The interaction between IRI Empathic Concern and LSRPS Factor II ($\beta = .12^{***}$) was positively related to physical aggression. Although standardized beta coefficients associated with perspective taking scales demonstrated reliable relationships with physical aggression, perspective taking accounted for a very small proportion of the variance (.06%) in physical aggression after psychopathy and covariates were accounted for. Interaction terms between psychopathy and perspective taking similarly explained a miniscule proportion of the variance 2%.

Next, a hierarchical linear regression to explore the influence of psychopathy and perspective taking on verbal aggression was performed. Similarly to the first regression, sex,

Maternal and Paternal Educational Attainment, and a measure of social desirability were entered in the first step, LSRPS Factor I and Factor II were entered in the second step, and IRI Empathic Concern and Perspective Taking were entered in the third step, and interaction terms between IRI Perspective Taking and LSPRS Factor I and Factor II and IRI Empathic Concern and IRI Perspective Taking were used to predict AQ Verbal Aggression. Sex, SES, and social desirability bias accounted for 3.2% of the variance in verbal aggression. Factor I and Factor I psychopathy accounted for an additional 19.1% of the variability. Perspective taking variables accounted for only 0.02% of the variance in verbal aggression after other variables were controlled for. Interaction terms between perspective taking and psychopathy variables explained 0.02% of the variability in verbal aggression. Male sex ($\beta = -.06^{***}$) and social desirability ($\beta = -.09^{***}$) were negatively related to verbal aggression and maternal ($\beta = .03^{***}$) and paternal education ($\beta = .01^{**}$) showed positive relationships. LSRPS Factor I ($\beta = .26^{***}$) and LSRPS Factor II ($\beta = .30^{***}$) significantly predicted verbal aggression. IRI Perspective Taking ($\beta = .01^{**}$) and IRI Empathic Concern ($\beta = .04^{***}$) were positively related to verbal aggression. Interactions between IRI Perspective Taking and LSRPS Factor I ($\beta = -.02^{***}$) and IRI Perspective Taking and LSRPS Factor II ($\beta = -.04^{***}$) were negatively related to verbal aggression. The interaction between IRI Empathic Concern and LSRPS Factor II ($\beta = .03^{***}$) was positively related to verbal aggression. Although standardized beta coefficients associated with perspective taking scales and their interaction terms demonstrated small reliable relationships with verbal aggression, perspective taking and associated interaction terms accounted for a very small proportion of the variance (.02% for both sets of variables) in verbal aggression after psychopathy and covariates were accounted for.

IV. DISCUSSION

Pearson's bivariate correlations evidenced negative relationships between psychopathy and the IRI Empathic Concern and IRI Perspective Taking scales consistent with those demonstrated by others (Ali & Chamorro-Premuzic, 2010; Blair et al., 2002; Iria & Barbosa, 2009; Mullins-Nelson et al., 2006). Psychopathy was related to measures of social aggression, similar to relationships found by other researchers (Coyne & Thomas, 2008; Coyne et al., 2010; Czar et al., 2011; Marsee et al., 2005; Schmeelk et al., 2008; Siebert et al., 2010; Warren & Clarbour, 2009). Perspective taking scales were negatively correlated with social aggression scales, consist with previously obtained relationships (Loudin et al., 2003; Richardson et al., 1994).

IRI Personal Distress and Fantasy scales demonstrated an unexpected pattern of relationships with measures of aggression and psychopathy. IRI Personal Distress was *positively* related to LSRPS Factor II and measures of social and direct aggression. IRI Fantasy similarly positively correlated with SRASB Reactive Relational Aggression, SRASB Cross Gender Relational Aggression, and AQ Hostility. These relationships must be considered, although only conjectures may be made at this point. IRI Personal Distress assesses discomfort in stressful situations. Individuals experiencing distress in an aversive situation may reactively aggress in order to escape, potentially accounting for the relationships between IRI Personal Distress and measures of social and direct aggression. IRI Personal Distress was further related to LSRPS Factor II, which assesses the tendency towards impulsive behavior aimed at achieving short term

goals. Individuals who are higher on IRI Personal Distress may be more stress reactive and less tolerant of frustration, leading them to be more likely to behave impulsively. IRI Fantasy assesses cognitive and affective involvement in fictional stories (e.g. films, novels). Individuals who are more emotionally involved with fictional characters may also be more emotionally reactive in interpersonal relationships, possibly leading to greater social aggression. IRI Fantasy may be positively related to AQ Hostility for similar reasons. AQ Hostility measures the tendency towards negative cognitive and affective reactions in interpersonal relationships and individuals who are more emotionally reactive may be more likely to experience negative emotions in interpersonal situations.

Negative relationships between IRI Empathic Concern and Perspective Taking and measures of psychopathy and social aggression suggested that perspective taking may mediate the relationship between psychopathy and social aggression. Structural regression modeling was used to assess this hypothesis. Psychopathy was inversely related to perspective taking and positively related to social aggression; however, perspective taking was not positively related to social aggression after the influence of psychopathy, sex, SES, and social desirability bias were accounted for. This held true when sex, SES, and social desirability covariate influence was removed from the analysis, suggesting that perspective taking did not serve as a mediator of the relationship between psychopathy and social aggression.

A questionnaire assessing direct (verbal and physical) aggression was administered in addition to measures of social aggression. Structural equation modeling using measures of direct aggression and psychopathy was problematic because indicators of psychopathy were more highly correlated with aggression indicators than with each other. Relationships may have been an artifact of questionnaires used or of correlational self-report data. However, consideration of

LSRPS Factor I and II scales may shed some light on this finding. LSRPS Factor I and II were developed to provide a self-report measure of psychopathy for non-forensic samples using the Psychopathy Checklist-Revised (PCL; Hare, 1991) as a conceptual framework (Levenson et al., 1995). LSRPS Factor I items represent a callous interpersonal style and LSRPS Factor II items an impulsive behavioral style. AQ Verbal and AQ Physical Aggression scales measured direct aggression. AQ Physical Aggression assessed the tendency to engage in or threaten physical violence and AQ Verbal Aggression the tendency to argue with others (Buss & Perry, 1992). Stronger relationships between LSRPS Factor II and AQ Verbal and Physical Aggression than with LSPRS Factor I may have been obtained due to shared overlap between impulsivity and aggression. A stronger relationship between LSRPS Factor I and AQ Physical Aggression than with LSRPS Factor II is more difficult to explain. It is possible the tendency towards callousness is more strongly related to aggression than to impulsivity; however, stronger relationships between scales on different measures than those on the same measure undermine construct validity. Despite this finding, independent replication is needed before strong conclusions may be drawn.

Relationships between psychopathy, perspective taking, and physical and verbal aggression were explored using hierarchical regression analyses. Perspective taking accounted for a very small proportion of variance in both physical (0.06%) and verbal (0.02%) aggression after covariates and psychopathy were controlled. Interaction terms between perspective taking and psychopathy similarly accounted for small proportions of physical (2%) and verbal (0.02%) aggression. Although statistically significant relationships between perspective taking and perspective taking by psychopathy interaction terms and measures of direct aggression were obtained, these variables explained a tiny proportion of the aggression variance. Given the large

sample size statistical significance alone cannot be relied upon; others have extensively discussed the perils of overreliance on critical p values in null hypothesis significance testing (see Carver, 1978; Meehl, 1978; Krantz, 1999). Cohen (1990, p 1311) eloquently points out that “the null hypothesis...is *always* false in the real world,” particularly given a big enough sample. Following Cohen’s (1990) suggestion, effect size and practical importance were considered in interpreting results. In hierarchical regression analyses, variables in blocks explaining at least 5% of the variance with statistically standardized Beta coefficients equal to or greater than .10 were thought to have potential practical importance.

Demographic covariates and social desirability explained 6.4% of the variability in physical aggression. Male sex and paternal education demonstrated small relationships with physical aggression. The relationship between physical aggression and male sex was consistent with sex differences obtained by others (Archer, 2004; Card, Stucky, Sawalani, & Little, 2008). Paternal education was negatively related to physical aggression, in line with associations between SES and externalizing behavior (Dodge, Pettit, & Bates, 1994). Psychopathy scales accounted for 23.7% of the variance in physical and 19.1% of the variance in verbal aggression over and above demographic and social desirability covariates. Strong relationships between psychopathy and physical and verbal aggression were consistent with the extant literature base (Coyne & Thomas, 2008; Guy et al., 2005; Pedersen et al., 2010; Warren & Clarbourn, 2009).

In addition to the general conceptualization of psychopathy, researchers considered interpersonal/affective and antisocial/lifestyle aspects of the construct. These comprise Factor I and Factor II, respectively, of the gold standard Psychopathy Checklist-Revised (PCL-R; Hare, 1991; 2003). PCL-R Factor I originally represented interpersonal and affective deficits and Factor II antisocial/irresponsible behavior (Hare, 1991), although the 2nd edition of the PCL-R

further separated items into interpersonal, socially deviant, irresponsible, and antisocial factors (Hare, 2003). Levenson and colleagues' (1995) widely used LSRPS was modeled on the two factor PCL-R, with LSRPS Factor I representing interpersonal affective deficits and LSRPS Factor II less severe antisocial and irresponsible behavior (in order to be applicable to non-forensic samples). In the current sample, LSRPS Factor II was more strongly related to physical aggression than LSRPS Factor I, whereas relationships of LSRPS Factor I and LSRPS Factor II with verbal aggression were similar in magnitude. Stronger relationships between LSRPS Factor II and physical aggression are consistent with the general disinhibited/antisocial assessment focus of this scale on both the LSRPS and PCL-R (Hare, 1991).

Contrary to expectations, perspective taking did not mediate the relationship between psychopathy and social aggression or explain substantial variance in physical or verbal aggression over and above psychopathy and covariates. Perspective taking was expected to serve as a mediator of the relationship between psychopathy and aggression because psychopathic dysfunction has been conceptualized as underpinned by difficulties in understanding others' distress (Blair, 2001; Blair et al., 2006; Dengerink & Bertilson, 1975; Hare, 1993). Furthermore, perspective taking has been negatively related to other forms of psychopathology (Baron-Cohen & Wheelwright, 2004; Schiffman et al., 2004; Villatte et al., 2010), psychopathy (Ali & Chamorro-Premuzic, 2010; Blair et al., 2002; Iria & Barbosa, 2009; Mahaffey & Marcus, 2006; Mullins-Nelson et al., 2006), and aggression (Loudin et al., 2003; Richardson et al., 1994). The current study may have failed to demonstrate that perspective taking mediated the relationship between psychopathy and aggression for a number of reasons.

Firstly, self report measures were used to assess all variables. It is possible that individuals may not be able to provide accurate self report assessment for particular constructs,

particularly empathy. Psychopathic individuals have been thought to experience “pseudo-emotions,” which are more similar to those experienced by animals than other humans (Cleckley, 1941;1976). If psychopathic individuals have never experience a normative range of empathy, they may be unable to accurately assess their experience. For instance, an individual may consider himself or herself to be a soft hearted person (IRI; Davis, 1980) while behaving in ways that are damaging to others (inconsistent with the normative definition of “soft hearted”). Potentially, shifting focus to more behavioral/collateral report based assessment of psychopathy, perspective taking, and aggression, would demonstrate expected relationships.

Alternatively, a crucial variable in the relationship between perspective taking and social aggression may have been left out. For instance, while perpetration of social aggression has been associated with negative social consequences (Werner & Crick, 1999) and psychopathology (Ellis et al., 2009; Goldstein et al., 2008; Ostrov et al., 2011), these effects were influenced by popularity. Engagement in social aggression appeared socially beneficial for popular and socially skilled adolescents (Prinstein & Cillessen; Puckett et al., 2008), particularly if the aggression was instrumental (Prinstein & Cillessen, 2003). Rose and Swenson (2009) found that perpetration of social aggression was unrelated to internalizing symptoms among popular youth, suggesting that popularity may protect perpetrators against negative consequences. Potentially, psychopathic individuals’ aggression was mediated by perspective taking to some extent, but this relationship was moderated by popularity. Social aggression may be functional for more, but not less, popular psychopathic individuals, masking the relationship between perspective taking and aggression.

Finally, it is possible that perspective taking deficits are not the crucial factor in psychopathic dysfunction. Scholars have certainly considered alternative explanations, prominent among them fearlessness and behavioral perseveration. Briefly, the fearlessness

hypothesis posits that psychopathic individuals engage in socially deviant behavior (including aggression) due to a neurophysiologically based inability to experience negative affect related to punishment leading to failure in socialization (Hare, 1993; Hare & Quinn, 1971; Lykken, 1957). From the behavioral perseveration perspective, psychopathic individuals have been thought to be more likely to engage in behaviors that may result in either reward or aversive consequences (Newman, Patterson, & Kosson, 1987; Siegel, 1978) due to difficulties in attending to periphery stimuli while engaging in goal directed behavior (Glass & Newman; Wallace & Newman, 2004). Perseveration or fearlessness, rather than perspective taking may be responsible for the relationship between psychopathy and aggression. Low perspective taking (particularly empathy) among psychopathic individuals may simply be the result of repeated engagement in aggression (see Festinger's 1957 cognitive dissonance theory).

1. Limitations

The present study used cross-sectional survey data in a convenience sample of undergraduates. Although the study focused on aggression in a non-forensic sample, college students differ from the general population in a number of ways (e.g. age, SES). Additionally, our sample consisted of individuals at a Southern University, and findings may have been influenced by cultural regional influences. Self report instruments were used to gather data, leaving room for error due to individual self perception deficits. Social desirability bias may have influenced responding, although we assessed and controlled for this tendency in analyses. While these limitations are important to keep in mind, survey methodology with convenience

samples has frequently been used to provide useful preliminary information due to low resource requirements and limited demands on participant time.

2. Conclusions and Future Directions

The hypothesis that perspective taking would mediate the relationship between psychopathy and social aggression was not supported in the current study. Independent replication, use of community and forensic samples, and use of alternative measures (e.g. clinical interviews, collateral reports, peer nominations, and behavioral tasks) would strengthen conclusions. If findings are reproduced, other variables influencing aggression among individuals high in psychopathy may be considered. Potentially, popularity may moderate relationships between psychopathy, perspective taking, and aggression. Alternatively, fearlessness or the tendency towards behavioral perseveration, rather than perspective taking, may serve as a mechanism of dysfunction.

REFERENCES

- Alexander, R. D. (1974). The evolution of social behavior. *Annual Review of Ecology and Systematics*, 5, 325-383.
- Ali, F. & Chamorro-Premuzic, T. (2010). Investigating theory of mind deficits in nonclinical psychopathy and Machiavellianism. *Personality and Individual Differences*, 49, 169-174.
- Andrews, P. & Meyer, R. G. (2003). *Marlowe-Crowne Social Desirability Scale* and short form-C: Forensic norms. *Journal of Clinical Psychology*, 59(4), 483-492.
- Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology*, 8(4), 291-322.
- Archer, J., & Coyne, S. M. (2005). An integrated review of indirect, relational, and social aggression. *Personality and Social Psychology Review*, 9(3), 212-230.
- Archer, J., & Webb, I. A. (2006). The relation between scores on the Buss-Perry Aggression Questionnaire and aggressive acts, impulsiveness, competitiveness, dominance, and sexual jealousy. *Aggressive Behavior*, 32(5), 464-473.
- Bailey, C. A., & Ostrov, J. M. (2008). Differentiating forms and functions of aggression in emerging adults: Associations with hostile attribution biases and normative beliefs. *Journal Of Youth & Adolescence*, 37(6), 713-722.
- Banissy, M. J. & Ward, J. (2007). Mirror-touch synesthesia is linked with empathy. *Nature Neuroscience*, 10, 815-816.
- Barnes-Holmes, Y., McHugh, L., & Barnes-Holmes, D. (2004). Perspective taking and theory of mind: A relational frame account. *The Behavior Analyst Today*, 5, 15-25.

- Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: An investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders, 34*, 164–175.
- Batson, C., Batson, J. G., Todd, R., Brummett, B. H., Shaw, L. L., & Aldeguer, C. R. (1995). Empathy and the collective good: Caring for one of the others in a social dilemma. *Journal Of Personality And Social Psychology, 68*(4), 619-631.
- Björkqvist, K. (1994). Sex differences in physical, verbal, and indirect aggression: A review of recent research. *Sex Roles, 30*(3/4), 177-188.
- Blair, R. J. R. (2001). Neurocognitive models of aggression, the antisocial personality disorders, and psychopathy. *Journal of Neurology, Neurosurgery, and Psychiatry, 71*, 727-731.
- Blair, R. J. R., Mitchell, D. G. V., Richell, R. A., Kelly, S., Leonard, A., Newman, C., & Scott, S. K. (2002). Turning a deaf ear to fear: Impaired recognition of vocal affect in psychopathic individuals. *Journal of Abnormal Psychology, 111*(4), 682-686.
- Blair, R. J. R., Peschardt, K. S., Budhani, S., Mitchell, D. G. V., & Pine, D. S. (2006). The development of psychopathy. *Journal of Child Psychology and Psychiatry, 47*(3/4), 262-275.
- Blair, R. J. R. (2010). A neurocognitive perspective on child and adolescent psychopathy. In *Handbook of Child and Adolescent Psychopathy*, Salekin, R. T. & Lynam, D. R., eds. pp 156-178. Guilford Press, New York: NY.
- Brinkley, C. A., Schmitt, W. A., Smith, S. S., & Newman, J. P. (2001). Construct validation of a self-report psychopathy scale: does Levenson’s self-report psychopathy scale measure the

- same constructs as Hare's psychopathy checklist-revised? *Personality and Individual Differences*, 31, 1021-1038.
- Brown, T. A. (2006). *Confirmatory Factor Analysis for Applied Research*. New York: Guilford Press.
- Buss, A. H. & Perry, M. (1992). The Aggression Questionnaire. *Journal of Personality and Social Psychology*, 63(3), 452-459.
- Card, N. A., Stucky, B. D., Sawalani, G. M. & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development*, 79(5), 1185-1229.
- Carver, R. P. (1978). The case against statistical significance testing. *Harvard Educational Review*, 48(3), 378-399.
- Cleckley, H. (1976). *The mask of sanity* (5th ed.). St. Louis, MO: Mosby.
- Cohen, J. (1990). The things I have learned (so far). *American Psychologist*, 45(12), 1304-1312.
- Corr, P. J. (2010). The psychoticism-psychopathy continuum: A model of core neuropsychological deficits. *Personality & Individual Differences*, 48, 695-703.
- Coyne, S. M., Archer, J., & Eslea, M. (2006). 'We're not friends anymore! Unless...': The frequency and harmfulness of indirect, relational, and social aggression. *Aggressive Behavior*, 32(4), 294-307.

- Coyne, S. M., Manning, J., Ringer, L., & Bailey, L. (2007). Directional asymmetry (right minus left differences) in digit ratio (2D: 4D) predict indirect aggression in women. *Personality and Individual Differences, 43*, 865–872.
- Coyne, S. M., Nelson, D. A., Graham-Kevan, N., Keister, E., Grant, D. M. (2010). Mean on the screen: Psychopathy, relationship aggression, and aggression in the media. *Personality & Individual Differences, 48*, 288-293.
- Coyne, S. M. & Thomas, T. J. (2008). Psychopathy, aggression, and cheating behavior: A test of the Cheater-Hawk hypothesis. *Personality & Individual Differences, 44*, 1105-1115.
- Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms on reactive and proactive aggression. *Child Development, 67*(3), 993-1002.
- Crick, N. R. & Grotpeter, J. K. (1995). Relational aggression, gender, and social psychological adjustment. *Child Development, 66*(3), 710-722.
- Crowne, D. P. & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24*(4), 349-354.
- Czar, K. A., Dahlen, E. R., Bullock, E. E., & Nicholson, B. C. (2011). Psychopathic personality traits in relational aggression among young adults. *Aggressive Behavior, 37*, 207-214.
- Davis, M. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology, 10*, 85.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*, 113-126.

- Dempsey, A. G. & Storch, E. A. (2008). Relational victimization: The association between recalled adolescent social experiences and emotional adjustment in early adulthood. *Psychology In The Schools, 45*(4), 310-322.
- Dengerink, H. A. & Bertilson, H. S. (1975). Psychopathy and physiological arousal in an aggressive task. *Psychophysiology, 12*(6), 682-684.
- Dodge, K. A., Pettit, G. S., & Bates, J. E. (1994). Socialization mediators of the relation between socioeconomic status and child conduct problems. *Child Development, 65*, 649-665.
- Eckhardt, C., Norlander, B., & Deffenbacher, J. (2004). The assessment of anger and hostility: A critical review. *Aggression & Violent Behavior, 9*, 17-43.
- Edens, J. F., Marcus, D. K., Lilienfeld, S. O., & Poythress, N. G. (2006). Psychopathic, not psychopath: Taxometric evidence for the dimensional structure of psychopathy. *Journal of Abnormal Psychology, 115*(1), 131-144.
- Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin, 101*(1), 91-119.
- Ellis, W. E., Crooks, C. V., & Wolfe, D. A. (2009). Relational aggression in peer and dating relationships: Links to psychological and behavioral adjustment. *Social Development, 18*(2), 253-269.
- Farrington, D. P., Ullrich, S., & Salekin, R. T. (2010). Environmental influences on child and adolescent psychopathy. In *Handbook of Child and Adolescent Psychopathy*, Salekin, R. T. & Lynam, D. R., eds. pp 202-230. Guilford Press, New York: NY.

- Feshbach, N. D. & Feshbach, S. (1969). The relationship between empathy and aggression in two age groups. *Developmental psychology, 1*(2), 102-107.
- Festinger, L. (1957). *A Theory of Cognitive Dissonance*, Stanford University Press.
- Fink, E. L. (2009). The FAQs on data transformation. *Communication Monographs, 76*(4), 379-397.
- Fontaine, R. G. (2007). Disentangling the psychology and law of instrumental and reactive subtypes of aggression. *Psychology, Public Policy, and Law, 13*(2), 143-165.
- Forrest, S., Eatough, V., & Shevlin, M. (2005). Measuring adult indirect aggression: The development and psychometric assessment of the Indirect Aggression Scales. *Aggressive Behavior, 31*(1), 84-97.
- Forth, A. E., Brown, S. L., Hart, S. D., & Hare, R. D. (1996). The assessment of psychopathy in male and female non-criminals: Reliability and validity. *Personality & Individual Differences, 20*(5), 531-543.
- Frick, P. J., Kimonis, E.R., Dandreaux, D. M., & Farrell, J. M. (2003). The 4-year stability of psychopathic traits in nonreferred youth. *Behavioral Sciences and the Law, 21*, 713-736.
- Frick, P. J. & White, S. F. (2008). The importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior. *Journal of Child Psychology and Psychiatry, 49*, 359-375.
- Gallese, V. & Goldman, A. (1998). Mirror neurons and the stimulation theory of mind reading. *Trends in Cognitive Sciences, 2*(12), 493-501.

- Glass, S. J. & Newman, J. P. (2006). Recognition of facial affect in psychopathic offenders. *Journal of Abnormal Psychology, 115*(4), 815-820.
- Glenn, A. L. & Raine, A. (2009). Psychopathy and instrumental aggression: Evolutionary, neurobiological, and legal perspectives. *International Journal of Law and Psychiatry, 32*, 253-258.
- Goldstein, S. E., Chesir-Teran, D., & McFaul, A. (2008). Profiles and correlates of relational aggression in young adults' romantic relationships. *Journal Of Youth And Adolescence, 37*(3), 251-265.
- Gomes, M. M., Davis, B. L., Baker, S. R., & Servonsky, E. (2009). Correlation of the experience of peer relational aggression victimization and depression among African American adolescent females. *Journal Of Child And Adolescent Psychiatric Nursing, 22*(4), 175-181.
- Grann, M. (2000). The PCL-R and gender. *European Journal of Psychological Assessment, 16*(3), 147-149.
- Gros, D. F., Gros, K. S., & Simms, L. J. (2010). Relations between anxiety symptoms and relational aggression and victimization in emerging adults. *Cognitive Therapy and Research, 34*, 134-143.
- Guay, J., Ruscio, J., Knight, R. A., & Hare, R. D. (2007). A taxometric analysis of the latent structure of psychopathy: Evidence for dimensionality. *Journal of Abnormal Psychology, 116*(4), 701-716.

- Guy, L. S., Edens, J. F., Anthony, C., & Douglas, K. S. (2005). Does psychopathy predict institutional misconduct among adults? A meta-analytic investigation. *Journal of Consulting and Clinical Psychology, 73*(6), 1056-1064.
- Gunter, T. D., Vaughn, M. G., & Philibert, R. A. (2010). Behavioral genetics in antisocial spectrum disorders and psychopathy: A review of the recent literature. *Behavioral Sciences & The Law, 28*(2), 148-173.
- Haker, H., & Rössler, W. (2009). Empathy in schizophrenia: Impaired resonance. *European Archives Of Psychiatry And Clinical Neuroscience, 259*(6), 352-361.
- Hare, R. D. (1966). Psychopathy and the choice of immediate versus delayed punishment. *Journal of Abnormal Psychology, 71*(1), 25-29.
- Hare, R. D. (1980). A research scale for the assessment of psychopathy in criminal populations. *Personality and Individual Differences, 1*(2), 111–119.
- Hare, R. D. (1991). *The Hare Psychopathy Checklist-Revised (PCL-R)*. Toronto, Ontario, Canada: Multi-Health Systems.
- Hare, R. D. (2003). *The Hare Psychopathy Checklist—Revised* (2nd ed.). Toronto, Ontario, Canada: Multi-Health Systems.
- 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*(3), 391-398.
- Hare, R. D. (1993). *Without Conscience: The Disturbing World of the Psychopaths Among Us*. New York: Simon & Schuster (Pocket Books).

- Hare, R. D. (1999). Psychopathy as a risk factor for violence. *Psychiatric Quarterly*, 70(3), 181-197.
- Hare, R. D. (2003). *Manual for the Revised Psychopathy Checklist, 2nd ed.* Toronto, ON: Multi-Health Systems.
- Hare, R. D., & Quinn, M. J. (1971). Psychopathy and autonomic conditioning. *Journal Of Abnormal Psychology*, 77(3), 223-235.
- Harpending, H. C. & Sobus, J. (1987). Sociopathy as an adaptation. *Ethology and Sociobiology*, 8, 63-72.
- Harris, J. A. (1997). A further evaluation of the aggression questionnaire: issues of validity and reliability. *Behavior Research and Therapy*, 35, 1047-1053.
- Hart, S. D., Kropp, P. R., & Hare, R. D. (1988). Performance of male psychopaths following conditional release from prison. *Journal of Consulting and Clinical Psychology*, 56(2), 227-232.
- Hawes, D. J., Dadds, M. R., Frost, A. J., & Hasking, P. A. (2011). Do childhood callous-unemotional traits drive change in parenting practices?. *Journal Of Clinical Child And Adolescent Psychology*, 40(4), 507-518.
- Hayes, S. C., Barnes-Holmes, D. & Roche, B. T. (2001a). *Relational frame theory: A post-Skinnerian account of human language and cognition*. New York: Plenum.
- Hayes, S. C., Fox, E., Gifford, E. V., Wilson, K., Barnes- Holmes, D., & Healy, O. (2001b). Derived relational responding as learned behavior. In S. C. Hayes, D. Barnes-Holmes, &

- B. Roche (Eds.), *Relational frame theory: A post-Skinnerian account of human language and cognition* (pp. 21–49). New York: Kluwer Academic/Plenum.
- Hox, J. J. & Bechger, T. M. (1998). An introduction to structural equation modeling. *Family Science Review*, *11*, 354-373.
- Hu, L. & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1-55.
- Iria, C. & Barbosa, F. (2009). Perception of facial expressions of fear: Comparative research with criminal and non-criminal psychopaths. *Journal of Forensic Psychology and Psychiatry*, *20*(1), 66-73.
- Jackson, P. L., Meltzoff, A. N., & Decety, J. (2005). How do we perceive the pain of others: A window into the neural processes involved in empathy. *NeuroImage*, *24*, 771–79.
- Karpman, B. (1941). On the need of separating psychopathy into two distinct clinical types: the symptomatic and the idiopathic. *Journal of Criminal Psychopathology*, *2*(3/4), 112-137.
- Karpman, B. (1948). Conscience in the psychopath: Another version. *American Journal of Orthopsychiatry*, *18*, 455-491.
- Kazdin, A. E. (2011). Conceptualizing the challenge of reducing interpersonal violence. *Psychology of Violence*, *1*(3), 166-187.
- Kernberg, O. (1998). The psychotherapeutic management of psychopathic, narcissistic, and paranoid transferences. In T. Millon, E. Simonsen, M. Birket-Smith, & R. D. Davis (Eds.), *Psychopathy: Antisocial, Criminal, and Violent Behavior* (pp. 372–382). New York: Guilford.

- Knafo, A., Steinberg, T., & Goldner, I. (2011). Children's low affective perspective-taking ability is associated with low self-initiated pro-sociality. *Emotion, 11*(1), 194-198.
- Kiehl, K. A., Hare, R. D., Liddle, P. F. & McDonald, J. J. (1999). Reduced P300 responses in criminal psychopaths during a visual oddball task. *Biological Psychiatry, 45*, 1498-1507.
- Kiehl, K. A., Smith, A. M., Hare, R. D., Mendrek, A., Forster, B. B., Brink, J., & Liddle, P. F. (2001). Limbic abnormalities in affective processing by criminal psychopaths as revealed by functional magnetic resonance imaging. *Society of Biological Psychiatry, 50*, 677-684.
- Kivimaki, M., Virtanen, M., Vartia, M., Vahtera, J., Keltikangas-Jarvinen, L. (2003). Workplace bullying and the risk of cardiovascular disease and depression. *Occupational and Environmental Medicine, 60*, 779-783.
- Kline, R. B. (2010). *Principles and Practice of Structural Equation Modeling, third edition*. Guilford Press: New York, NY.
- Krantz, D. H. (1999). The null hypothesis testing controversy in psychology. *Journal of the American Statistical Association, 44*(448), 1372-1381.
- Ledgerwood, A., & Shrout, P. E. (2011). The trade-off between accuracy and precision in latent variable models of mediation processes. *Journal Of Personality And Social Psychology, 101*(6), 1174-1188.
- Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology, 68*(1), 151-158.

Lilienfeld, S.O. (2004, March). Psychometric Properties of Self- Report Psychopathy Measures.

Paper presented at the meeting of the American Psychology-Law Society, Scottsdale, AZ.

Lilienfeld S. O., Widows M. R. (2005). *Psychopathic Personality Inventory-Revised:*

Professional Manual. Lutz, FL: Psychological Assessment Resources, Inc.

Linder, J.R., Crick, N.R., & Collins, W.A. (2002). Relational Aggression and Victimization in

Young Adults' Romantic Relationships: Associations with Perceptions of Parent, Peer, and Romantic Relationship Quality. *Social Development, 11*(1), 71-86.

Lorber, M. F. (2004). Psychophysiology of aggression, psychopathy, and conduct problems: A meta-analysis. *Psychological Bulletin, 130*(4), 531-552.

Loudin, J. L., Loukas, A., & Robinson, S. (2003). Relational aggression in college students:

Examining the roles of social anxiety and empathy. *Aggressive Behavior, 29*, 430-439.

Lutgen-Sandvik, P., Tracy, S. J., & Alberts, J. K. (2007). Burned by bullying in the American workplace: Prevalence, perception, degree, and impact. *Journal of Management Studies, 44*(6), 837-862.

Lykken, D. T. (1957). A study of anxiety in the sociopathic personality. *Journal of Abnormal and Social Psychology, 55*, 6-10.

MacCallum, R. C. & Austin, J. T. (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology, 51*, 201-226.

Mahaffey, K. J. & Marcus, D. K. (2006). Interpersonal perception of psychopathy: A social relations analysis. *Journal of Social & Clinical Psychology, 25*(1), 53-74.

- Marsee, M., Silverthorn, P., & Frick, P. J. (2005). The association of psychopathic traits with aggression and delinquency in non-referred boys and girls. *Behavioral Sciences & the Law*, 23, 803–817.
- Meehl, P. E. (1978). Theoretical risks and tabular asterisks: Sir Karl, Sir Ronald, and the slow process of soft psychology. *Journal of Consulting and Clinical Psychology*, 46, 806-834.
- Miller, J. D. & Lynam, D. R. (2003). Psychopathy and the five-factor model of personality: A replication and extension. *Journal of Personality Assessment*, 81(2), 168-178.
- Miller, C. A., Parrott, D. J., & Giancola, P. R. (2009). Agreeableness and alcohol-related aggression: The mediating effect of trait aggressivity. *Experimental And Clinical Psychopharmacology*, 17(6), 445-455.
- Morales, J. R. & Crick, N. R. (1999, April). *Hostile attribution and aggression in adolescent peer and romantic relationships*. Poster presented at the Biennial Meetings of the Society for Research in Child Development, Albuquerque, NM.
- Mullins-Nelson, J. L., Salekin, R. T., & Leistico, A. M. R. (2006). Psychopathy, empathy, and perspective-taking ability in a community sample: Implications for the successful psychopathy concept. *International Journal of Forensic Mental Health*, 5(2), 133-149.
- Munoz, L. C., Khan, R., & Cordwell, L. (2010). Sexually coercive tactics used by university students: A clear role for primary psychopathy. *Journal of Personality Disorders*, 25(1), 28-40.
- Murray-Close, D., Ostrov, J. M., Nelson, D. A., Crick, N. R., & Coccaro, E. F. (2010). Proactive, reactive, and romantic relational aggression in adulthood: Measurement, predictive

- validity, gender differences, and association with Intermittent Explosive Disorder. *Journal of Psychiatric Research*, 44, 393-404.
- Newman, J. P., Kosson, D. S., & Patterson, C. M. (1992). Delay of gratification in psychopathic and nonpsychopathic offenders. *Journal of Abnormal Psychology*, 101(4), 630-636.
- Newman, J. P., Patterson, C. M., & Kosson, D. S. (1987). Response perseveration in psychopaths. *Journal of Abnormal Psychology*, 96(2), 145-148.
- Olsson, H. U., Foss, T., Troye, S. V., & Howell, R. D. (2000). The performance of ML, GLS, and WLS estimation in structural equation modeling under conditions of misspecification and nonnormality. *Structural Equation Modeling*, 7(4), 557-595.
- Olver, M. E. & Wong, S. C. P. (2009). Therapeutic responses of psychopathic sexual offenders: Treatment, attrition, therapeutic change, and long-term recidivism. *Journal of Consulting and Clinical Psychology*, 77(2), 328-336.
- Ostrov, J. M., Hart, E. J., Kamper, K. E., & Godleski, S. A. (2011). Relational aggression in women during emerging adulthood: A social process model. *Behavioral Sciences & the Law*, 29, 695-710.
- Palme, E. J., & Thakordas, V. (2005). Relationship between bullying and scores on the Buss-Perry Aggression Questionnaire among imprisoned male offenders. *Aggressive Behavior*, 31(1), 56-66.
- Parker, J. G. & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin*, 102(3), 357-389.

- Paterson, H., Reniers, R., & Völlm, B. (2009). Personality types and mental health experiences of those who volunteer for helplines. *British Journal Of Guidance & Counseling*, 37(4), 459-471.
- Patrick, C. J., Cuthbert, B. N., & Lang, P. J. (1994). Emotion in the criminal psychopath: Fear image processing. *Journal of Abnormal Psychology*, 103(3), 523-534.
- Patrick, C. J., Bradley, M. M., & Lang, P. L. (1993). Emotion in the criminal psychopath: Startle reflex modulation. *Journal of Abnormal Psychology*, 102(1), 82-92.
- Patrick, C. J., 2010. Conceptualizing the psychopathic personality: disinhibited, bold, or just plain mean, pp 15-48. In: Lynam, D.R., Salekin, R.J. (Eds.), *Handbook of Child and Adolescent Psychopathy*. Guilford Press, New York.
- Pedersen, L., Kunz, C., Rasmussen, K., & Ellass, P. (2010). Psychopathy as a risk factor for violent recidivism: Investigating the *Psychopathy Checklist-Screening Version (PCL:SV)* and the *Comprehensive Assessment of Psychopathic Personality (CAPP)* in a forensic psychiatric setting. *International Journal of Forensic Mental Health*, 9, 308-315.
- Prinstein, M. J. & Cillessen, A. N. (2003). Forms and functions of adolescent peer aggression associated with high levels of peer status. *Merrill-Palmer Quarterly: Journal Of Developmental Psychology*, 49(3), 310-342.
- Puckett, M. B., Aikins, J., & Cillessen, A. N. (2008). Moderators of the association between relational aggression and perceived popularity. *Aggressive Behavior*, 34(6), 563-576.
- Pulos, S., Elison, J., & Lennon, R. (2004). The hierarchical structure of the Interpersonal Reactivity Index. *Social Behavior And Personality*, 32(4), 355-359.

- Quine, L. (1999). Workplace bullying in NHS community trust: staff questionnaire survey. *BMJ*, 318, 228-232.
- Quine, L. (2001). Workplace bullying in nurses. *Journal of Health Psychology*, 6(1), 73-84.
- Reynolds, W. M. (1982). Development of reliable and valid short forms of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology*, 38(1), 119-125.
- Richardson, D., Hammock, G. S., Smith, S. M., Gardner, W., & Signo, M. (1994). Empathy as a cognitive inhibitor of interpersonal aggression. *Aggressive Behavior*, 20(4), 275-289.
- Rogers, K., Dziobek, I., Hassenstab, J., Wolf, O. T., & Convit, A. (2007). Who cares? Revisiting empathy in Asperger syndrome. *Journal Of Autism And Developmental Disorders*, 37(4), 709-715.
- Rose, A. J., & Swenson, L. P. (2009). Do perceived popular adolescents who aggress against others experience emotional adjustment problems themselves?. *Developmental Psychology*, 45(3), 868-872.
- Schermelleh-Engel, K., Moosbrugger, H. & Muller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8(2), 23-74.
- Schiffman, J., Lam, C. W., Jiwatram, T., Ekstrom, M., Sorensen, H., & Mednick, S. (2004). Perspective-taking deficits in people with schizophrenia spectrum disorders: A prospective investigation. *Psychological Medicine*, 34, 1581-1586.

- Schmeelk, K. M., Sylvers, P., & Lilienfeld, S. O. (2008). Trait correlates of relational aggression in a nonclinical sample: DSM-IV personality disorders and psychopathy. *Journal of Personality Disorders, 22*(3), 269-283.
- Seibert, A. L., Miller, J. D., Few, L. R., Zeichner, A., & Lynam, D. R. (2010). An examination of the structure of self-report psychopathy measures and their relations with general traits and externalizing behavior. *Personality Disorders: Theory, Research, and Treatment*. Advance online publication.
- Siegel, R. A. (1978). Probability of punishment and suppression of behavior in psychopathic and nonpsychopathic offenders. *Journal of Abnormal Psychology, 87*(5), 514-522.
- Singer, T., & Fehr, E. (2005). The neuroeconomics of mind reading and empathy, *American Economic Review, 95*, 340–345.
- Smith, P., Waterman, M., & Ward, N. (2006). Driving aggression in forensic and non-forensic populations: Relationships to self-reported levels of aggression, anger and impulsivity. *British Journal Of Psychology, 97*(3), 387-403.
- Strand, S. & Belfrage, H. (2005). Gender differences in psychopathy in a Swedish offender sample. *Behavioral Sciences and the Law, 23*, 837-850.
- Tabachnick, B. G. & Fidell, L. S. (2007). *Using Multivariate Statistics, 5th ed.* Boston: Allyn & Bacon.
- 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*(6), 592-597.

- Villatte, M., Monestès, J., McHugh, L., i Baqué, E., & Loas, G. (2010). Assessing perspective taking in schizophrenia using relational frame theory. *The Psychological Record*, *60*(3), 413-436.
- de Waal, F. B. M. (2008). Putting the altruism back into altruism: The evolution of empathy. *Annual Review of Psychology*, *59*, 279-300.
- Wallace, J. F. & Newman, J. P. (2004). A theory based treatment model for psychopathy. *Cognitive and Behavioral Practice*, *11*, 178-189.
- Warren, G. C., & Clabour, J. (2009). Relationship between psychopathy and indirect aggression use in a noncriminal population. *Aggressive Behavior*, *35*(5), 408-421.
- Werner, N. E., & Crick, N. R. (1999). Relational aggression and social-psychological adjustment in a college sample. *Journal Of Abnormal Psychology*, *108*(4), 615-623.
- Widaman, K. F. & Thompson, J. S. (2003). On specifying the null model for incremental fit indices in structural equation modeling. *Psychological Methods*, *8*(1), 16-37.
- Williams, J., Fredland, N., Han, H., Campbell, J. C., & Kub, J. E. (2009). Relational aggression and adverse psychosocial and physical health symptoms among urban adolescents. *Public Health Nursing*, *26*(6), 489-499.
- Yang, Y., Raine, A., Lencz, T., Bihrlé, S., LaCasse, L., & Colletti, P. (2005). Volume reduction in prefrontal gray matter in unsuccessful criminal psychopaths. *Biological Psychiatry*, *57*, 1103-1108.

LIST OF APPENDICES

APPENDIX A: LETTER OF CONSENT

LETTER OF CONSENT

INVESTIGATORS

Olga Berkout
Department of Psychology
University of Mississippi
(662)-613-0008
oberkout@olemiss.edu

Alan M. Gross, Ph.D.
Department of Psychology
University of Mississippi
(662)-915-5186
pygross@olemiss.edu

DESCRIPTION:

Ms. Berkout and Dr. Gross are studying associations between personality traits and interpersonal relationships and aggressive behavior. This survey will take approximately an hour and a half to complete. Your responses will be kept anonymous. If your professor allows you to get extra credit for participating, you will receive 1.5 extra credit hours.

RISKS AND BENEFITS:

The benefits of participating in this study include the satisfaction of contributing to the advancement of psychological research.

COSTS AND PAYMENTS:

There are no costs or payments associated with participating in this study. If you are taking a Psychology class, you will receive 1.5 hours of research credit at the end of the session.

CONFIDENTIALITY:

No information that links you with your survey responses will be collected.

RIGHT TO WITHDRAW:

You are free to withdraw from this study at any time. Your decision will not adversely affect your standing with the Psychology Department or the University of Mississippi and will not cause any loss of benefits to which you are entitled.

IRB APPROVAL:

This study has been reviewed by The University of Mississippi's Institutional Review Board (IRB). The IRB has determined that this study fulfills the human research subject protections obligations required by state and federal law and University policies. If you have any questions, concerns, or reports regarding your rights as a participant of research, please contact the IRB at (662) 915-7482.

STATEMENT OF CONSENT:

I have read the above information and understand that I can print/keep a copy of this form for my records. I understand that I can contact Olga Berkout or Dr. Alan Gross with additional questions I have about this study. By proceeding to take the survey, I consent to participate.

APPENDIX B: QUESTIONNAIRES

APPENDIX B: QUESTIONNAIRES

Demographic Questions

1. How old are you? _____
2. What is your sex?
 - a. Male
 - b. Female
 - c. Other
3. What race/ethnicity do you consider yourself to be?
 - a. White/Caucasian
 - b. Black/African American
 - c. Asian/Asian American
 - d. Latino/Hispanic
 - e. Native American
 - f. Pacific Islander
 - g. Biracial
 - h. Other
4. Please provide an estimate of your parents' household yearly income. If your parents are divorced/separated please use the income for the parent with who you spent the most time growing up. We realize this may seem difficult, but please do your best. _____
5. What is the highest grade of education your mother achieved?

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

6. What is your mother's occupation? _____

7. What is the highest level of education your father achieved?

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

8. What is your father's occupation? _____

Marlowe-Crowne Social Desirability Scale-Short Form-C

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you.

- T F 1. It is sometimes hard for me to go on with my work if I am not encouraged.
- T F 2. I sometimes feel resentful when I don't get my way.
- T F 3. On a few occasions, I have given up doing something because I thought too little of my ability.
- T F 4. There have been times when I felt like rebelling against people in authority even though I knew they were right.
- T F 5. No matter whom I'm talking to, I'm always a good listener.
- T F 6. There have been occasions when I took advantage of someone.
- T F 7. I'm always willing to admit it when I make a mistake.
- T F 8. I sometimes try to get even rather than forgive and forget.
- T F 9. I am always courteous, even to people who are disagreeable.
- T F 10. I have never been irked when people expressed ideas very different from my own.
- T F 11. There have been times when I was quite jealous of the good fortune of others.
- T F 12. I am sometimes irritated by people who ask favors of me.
- T F 13. I have never deliberately said something that hurt someone's feelings.

Levenson Self Report Psychopathy Scale (LSRP; Levenson et al., 1995)

PP = Primary Psychopathy, SP = Secondary Psychopathy

Please let us know the extent to which you agree with each item

1 = “disagree strongly” 2 = “disagree somewhat” 3 = “agree somewhat” 4 = “agree strongly”

1. Success is based on survival of the fittest; I am not concerned about the losers. (PP)
2. For me, what’s right is whatever I can get away with. (PP)
3. In today’s world, I feel justified in doing anything I can get away with to succeed. (PP)
4. My main purpose in life is to get as many goodies as I can. (PP)
5. Making a lot of money is my most important goal. (PP)
6. I let others worry about higher values; my main concern is with the bottom line. (PP)
7. People who are stupid enough to get ripped off usually deserve it. (PP)
8. Looking out for myself is my top priority. (PP)
9. I tell other people what they want to hear so that they will do what I want them to do.
(PP)
10. I would be upset if my success came at someone else’s expense. (R; PP)
11. I often admire a really clever scam. (PP)
12. I make a point of trying not to hurt others in pursuit of my goals. (R; PP)
13. I enjoy manipulating other people’s feelings (PP)

14. I feel bad if my words or actions cause someone else to feel emotional pain. (R; PP)
15. Even if I were to try very hard to sell something, I wouldn't lie about it. (R; PP)
16. Cheating is not justified because it is unfair to others. (R; PP)
17. I find myself in the same kinds of trouble, time after time. (SP)
18. I am often bored. (SP)
19. I find that I am able to pursue one goal for a long time. (R; SP)
20. I don't plan anything very far in advance. (SP)
21. I quickly lose interest in tasks I start. (SP)
22. Most of my problems are due to the fact that other people just don't understand me. (SP)
23. Before I do anything, I carefully consider the possible consequences. (R; SP)
24. I have been in a lot of shouting matches with other people. (SP)
25. When I get frustrated, I often "let off steam" by blowing my top. (SP)
26. Love is overrated. (SP)

Self-Report of Aggression and Social Behavior Measure (Morales & Crick, 1999).

Directions: This questionnaire is designed to measure qualities of adult social interaction and close relationships. Please read each statement and indicate how true each is for you, **now and during the last year**, using the scale below. Write the appropriate number in the blank provided. IMPORTANT. The items marked with asterisks (*) ask about experiences in a current romantic relationship. **If you are not currently in a romantic relationship, or if you have not been in a relationship during the last year, please leave these items blank** (but answer all of the other items). Remember that your answers to these questions are completely anonymous, so please answer them as honestly as possible!

Not at All True			Sometimes True			Very True
1	2	3	4	5	6	7

1. * I have threatened to break up with my romantic partner in order to get him/her to do what I wanted. (CR)
2. My friends know that I will think less of them if they do not do what I want them to do (PR)
3. When I am not invited to do something with a group of people, I will exclude those people from future activities. (RR)
4. When I want something from a friend of mine, I act “cold” or indifferent towards them until I get what I want. (PR)

5. *I try to make my romantic partner jealous when I am mad at him/her. (CR)
6. When I have been angry at, or jealous of someone, I have tried to damage that person's reputation by gossiping about him/her or by passing on negative information about him/her to other people. (RR)
7. When someone does something that makes me angry, I try to embarrass that person or make them look stupid in front of his/her friends. (RR)
8. When I have been mad at a friend, I have flirted with his/her romantic partner. (RR)
9. When I am mad at a person, I try to make sure s/he is excluded from group activities (going to the movies or to a bar). (RR)
10. I have threatened to share private information about my friends with other people in order to get them to comply with my wishes. (PR)
11. *I have cheated on my romantic partner because I was angry at him/her. (CR)
12. I have spread rumors about a person just to be mean. (PR)
13. *I give my romantic partner the silent treatment when s/he hurts my feelings in some way. (CR)
14. When someone hurts my feelings, I intentionally ignore them. (RR)
15. *If my romantic partner makes me mad, I will flirt with another person in front of him/her (CR)
16. I have intentionally ignored a person until they gave me my way about something. (PR)

Subscale Items:

Proactive: Items # 2, 4, 10, 12, 16 (PR)

Reactive: Items # 3, 6, 7, 8, 9, 14 (RR)

Cross-Gender: # 1, 5, 11, 13, 15 (CR)

Indirect Aggression Scale-Aggressor Form (Forrest et al., 2005)

Subscales: SE = Social Exclusion, MH = Malicious Humor, GI = Guilt Induction

Please provide an estimate of how frequently you have engaged in the following behaviors towards others over the past 12 months using the following response format:

1 = never, 2 = once or twice, 3 = sometimes, 4 = often, 5 = regularly

1. Used my relationship with them to try and get them to change a decision (GI)
2. Used sarcasm to insult them (MH)
3. Tried to influence them by making them feel guilty (GI)
4. Withheld information from them that the rest of the group is let in on (SE)
5. Purposefully left them out of activities (SE)
6. Made other people not talk to them (SE)
7. Excluded them from a group (SE)
8. Used their feelings to coerce them (GI)
9. Made negative comments about their physical appearance (MH)
10. Used private in-jokes to exclude them (SE)
11. Used emotional blackmail on them (GI)
12. Imitated them in front of others (MH)
13. Spread rumors about them (SE)

14. Played a nasty practical joke on them (MH)
15. Done something to try and make them look stupid (MH)
16. Pretended to be hurt and/or angry with them to make them feel bad about him/her-self (GI)
17. Made them feel that they don't fit in (SE)
18. Intentionally embarrassed them around others (MH)
19. Stopped talking to them (SE)
20. Put undue pressure on them (GI)
21. Omitted them from conversations on purpose (SE)
22. Made fun of them in public (MH)
23. Called them names (MH)
24. Criticized them in public (MH)
25. Turned other people against them (SE)

Aggression Questionnaire (Buss & Perry, 1992)

1-9 Physical Aggression (PA); 10-14 Verbal Aggression (VA); 15-21 Anger (A); 22-29 Hostility

(H)

Please rate each of the following items in terms of how characteristic they are of you. Use the following scale for answering these items.

1	2	3	4	5	6	7
extremely uncharacteristic of me						extremely characteristic of me

1) Once in a while I can't control the urge to strike another person. (PA)

2) Given enough provocation, I may hit another person. (PA)

3) If somebody hits me, I hit back. (PA)

4) I get into fights a little more than the average person. (PA)

5) If I have to resort to violence to protect my rights, I will. (PA)

6) There are people who pushed me so far that we came to blows. (PA)

7) I can think of no good reason for ever hitting a person. (PA)

8) I have threatened people I know. (PA)

9) I have become so mad that I have broken things. (PA)

10) I tell my friends openly when I disagree with them. (VA)

- 11) I often find myself disagreeing with people. (VA)
- 12) When people annoy me, I may tell them what I think of them. (VA)
- 13) I can't help getting into arguments when people disagree with me. (VA)
- 14) My friends say that I'm somewhat argumentative. (VA)
- 15) I flare up quickly but get over it quickly. (A)
- 16) When frustrated, I let my irritation show. (A)
- 17) I sometimes feel like a powder keg ready to explode. (A)
- 18) I am an even-tempered person. (A)
- 19) Some of my friends think I'm a hothead. (A)
- 20) Sometimes I fly off the handle for no good reason. (A)
- 21) I have trouble controlling my temper. (A)
- 22) I am sometimes eaten up with jealousy. (H)
- 23) At times I feel I have gotten a raw deal out of life. (H)
- 24) Other people always seem to get the breaks. (H)
- 25) I wonder why sometimes I feel so bitter about things. (H)
- 26) I know that "friends" talk about me behind my back. (H)
- 27) I am suspicious of overly friendly strangers. (H)

28) I sometimes feel that people are laughing at me behind me back. (H)

29) When people are especially nice, I wonder what they want. (H)

Interpersonal Reactivity Index (IRI; Davis, 1980; 1983)

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale at the top of the page: A, B, C, D, or E. When you have decided on your answer, fill in the letter on the answer sheet next to the item number. **READ EACH ITEM CAREFULLY BEFORE RESPONDING.** Answer as honestly as you can. Thank you.

ANSWER SCALE:

A	B	C	D	E
Does not describe me very well				Describes me very well

1. I daydream and fantasize, with some regularity, about things that might happen to me. (FS)
2. I often have tender, concerned feelings for people less fortunate than me. (EC)
3. I sometimes find it difficult to see things from the "other guy's" point of view. (PT) (-)
4. 4. Sometimes I don't feel very sorry for other people when they are having problems. (EC) (-)
5. 5. I really get involved with the feelings of the characters in a novel. (FS)
6. In emergency situations, I feel apprehensive and ill-at-ease. (PD)

7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it. (FS) (-)
8. I try to look at everybody's side of a disagreement before I make a decision. (PT)
9. When I see someone being taken advantage of, I feel kind of protective towards them. (EC)
10. I sometimes feel helpless when I am in the middle of a very emotional situation. (PD)
11. I sometimes try to understand my friends better by imagining how things look from their perspective. (PT)
12. Becoming extremely involved in a good book or movie is somewhat rare for me. (FS) (-)
13. When I see someone get hurt, I tend to remain calm. (PD) (-)
14. Other people's misfortunes do not usually disturb me a great deal. (EC) (-)
15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. (PT) (-)
16. After seeing a play or movie, I have felt as though I were one of the characters. (FS)
17. Being in a tense emotional situation scares me. (PD)
18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them. (EC) (-)
19. I am usually pretty effective in dealing with emergencies. (PD) (-)
20. I am often quite touched by things that I see happen. (EC)

21. I believe that there are two sides to every question and try to look at them both. (PT)
22. I would describe myself as a pretty soft-hearted person. (EC)
23. When I watch a good movie, I can very easily put myself in the place of a leading character. (FS)
24. I tend to lose control during emergencies. (PD)
25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while. (PT)
26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me. (FS)
27. When I see someone who badly needs help in an emergency, I go to pieces. (PD)
28. Before criticizing somebody, I try to imagine how I would feel if I were in their place. (PT)

NOTE:(-) denotes item to be scored in reverse fashion, PT = perspective-taking scale, FS = fantasy scale, EC = empathic concern scale, PD = personal distress scale

Items scored A = 0, B = 1, C = 2, D = 3, E = 4

Except for reversed-scored items, which are scored: A = 4, B = 3, C = 2, D = 1, E = 0

APPENDIX C: RESULTS

APPENDIX C: RESULTS

Table 1. Demographic Characteristics

Variable	Mean (SD)	Variance	Minimum-Maximum
Age	19.32 (2.17)	4.71	18-53
Estimated Household Income	3,140,507.78 (50,797,986.35)	2,580,435,417,481,813	0-1,000,000,000
Maternal Educational Attainment	15.04 (2.38)	5.55	7-20
Paternal Educational Attainment	15.37 (2.80)	7.82	5-20

Note: Outliers were included in this table in order to provide an accurate picture of the total dataset.

Table 2. Skew and Kurtosis of Primary Variables of Interest

Variable	Skew Index (Standard Error)	Kurtosis Index (Standard Error)
MCSDS	.07 (.12)	-.53 (.24)
LSRPS Factor I	.36 (.12)	-.18 (.24)
LSRPS Factor II	.12 (.12)	-.31 (.23)
LSRPS Total	.23 (.12)	-.15 (.24)
IRI FS	.01 (.12)	-.61 (.24)
IRI PT	.07 (.12)	-.35 (.23)
IRI EC	-.30 (.12)	-.03 (.23)
IRI PD	-.01 (.12)	.06 (.24)
IRI Total	-.17 (.12)	.29 (.24)
SRASB P	1.95 (.12)	4.52 (.24)
SRASB R	1.95 (.12)	4.52 (.24)
SRASB CG	.85 (.13)	.12 (.26)
SRASB Total	1.04 (.13)	.73 (.26)
IAS SE	1.64 (.12)	4.00 (.24)
IAS MH	1.47 (.12)	2.86 (.24)
IAS GI	1.23 (.12)	1.41 (.24)
IAS Total	1.34 (.12)	1.95 (.24)
AQ H	.41 (.12)	-.43 (.24)
AQ PA	.61 (.12)	-.28 (.24)
AQ VA	.47 (.12)	-.11 (.23)
AQ A	.73 (.12)	.27 (.23)
AQ Total	.48 (.12)	-.08 (.24)

Table 3. Descriptive Statistics for Major Variables of Interest

Variable	Mean (Standard Deviation)	Median	Range
MCSDS	6.24 (2.85)	6	0-13
LSRPS Factor I	30.10 (7.18)	29	16-52
LSRPS Factor II	20.62 (4.81)	21	10-35
LSRPS Total	50.74 (10)	50	26-85
IRI FS	23.36 (5.78)	23	7-35
IRI PT	24.21 (4.64)	24	10-35
IRI EC	27.04 (4.42)	27	9-35
IRI PD	19.18 (4.50)	19	7-34
IRI Total	94.10 (12.64)	94	39-126
SRASB P	8.61 (4.63)	7	5-33
SRASB R	13.33 (6.06)	12	6-42
SRASB CG	12.14 (6.07)	11	5-30
SRASB Total	33.93 (14.86)	29	16-91
IAS SE	15.80 (5.83)	14	10-50
IAS MH	15.63 (6.04)	14	9-45
IAS GI	10.17 (3.80)	9	6-25
IAS Total	41.29 (13.84)	37	16-91
AQ H	23.47 (10.02)	23	8-56
AQ PA	26.43 (11.75)	25	9-61
AQ VA	17.25 (6.21)	17	5-35
AQ A	19.82 (7.81)	19	7-49
AQ Total	87.36 (28.54)	86	29-194

Table 4. Squared Multiple Correlations for Variables of Interest

Variable	R^2_{smc}
MCSDS	.26
LSRPS Factor I	.34
LSRPS Factor II	.43
IRI FS	.31
IRI PT	.45
IRI EC	.55
IRI PD	.28
SRASB P	.63
SRASB R	.70
SRASB CG	.45
IAS SE	.72
IAS MH	.65
IAS GI	.64
AQ H	.54
AQ PA	.45
AQ VA	.41
AQ A	.54
Estimated Annual Household Income	.10
Age	.14
Maternal Educational Attainment	.28
Paternal Educational Attainment	.30

Note: Variables used to obtain R^2_{smc} values included: sex, age, estimated annual household income, maternal educational attainment, paternal educational attainment, AQ Anger, AQ Verbal Aggression, AQ Physical Aggression, AQ Hostility, IAS Malicious Humour, IAS Guilt Induction, IAS Social Exclusion, SRASB Cross Gender Relational Aggression, SRASB Reactive

Relational Aggression, SRASB Proactive Relational Aggression, IRI Personal Distress, IRI Perspective Taking, IRI Fantasy, IRI Empathic Concern, LSRPS Factor I, LSRPS Factor II, and MCSDS.

Table 5. Proportion of Missing Data for Major Variables of Interest

Variable	Percent Missing
MCSDS	2.1%
LSRPS Factor I	4.6%
LSRPS Factor II	1.6%
LSRPS Total	5.3%
IRI FS	3.2%
IRI PT	1.4%
IRI EC	1.6%
IRI PD	2.8%
IRI Total	6.4%
SRASB P	5.5%
SRASB R	4.1%
SRASB CG	21.6%
SRASB Total	22.3%
IAS SE	3.9%
IAS MH	2.8%
IAS GI	3.0%
IAS Total	4.6%
AQ H	2.8%
AQ PA	1.8%
AQ VA	1.1%
AQ A	1.4%
AQ Total	3.9%
Age	0.7%
Estimated Household Income	10.8%
Maternal Educational	0.9%

Attainment

Paternal Educational Attainment 2.5%

Sex 0%

Table 6. Comparison of Participants with Missing Data on SRASB Proactive Relational Aggression, SRASB Cross Gender Relational Aggression, or Estimated Annual Household Income.

	Missing Mean (Standard Deviation)	Non-Missing Mean (Standard Deviation)	F	p
Age	19.17 (1.08)	19.18 (1.04)	.01	.94
Maternal Educational Attainment	15.28 (2.45)	14.95 (2.32)	1.83	.18
Paternal Educational Attainment	15.13 (2.77)	15.48 (2.80)	1.41	.24
LSRPS Factor I	31.30 (8.51)	29.55 (6.44)	5.23	.02
LSRPS Factor II	21.39 (4.63)	20.35 (4.81)	4.29	.04
MCSDS	6.74 (2.92)	6.05 (2.79)	5.24	.02
SRASB	13.30 (6.14)	13.18 (5.71)	.03	.87
IAS SE	15.21 (5.25)	15.69 (5.28)	.73	.39
IAS MH	15.29 (5.67)	15.35 (5.40)	.01	.92
IAS GI	9.79 (3.45)	10.10 (3.51)	.69	.41
AQ PA	25.41 (12.04)	26.87 (11.59)	1.41	.24
AQ VA	16.73 (6.62)	17.43 (6.00)	1.15	.28
AQ A	19.24 (7.51)	19.86 (7.62)	.61	.90
AQ H	23.34 (10.02)	23.47 (10.08)	.02	.90
IRI FS	22.84 (5.79)	23.59 (5.92)	1.53	.22
IRI PT	23.36 (4.14)	24.63 (4.77)	6.83	.01
IRI EC	26.45 (4.62)	27.35 (4.18)	3.94	.05
IRI PD	19.24 (4.25)	19.14 (4.59)	.04	.84

Note: Bonferroni adjustment results in a critical p value of < 0.003

Table 7. Pearson's Bivariate Correlations Between Measures of Social and Direct Aggression

	AQ H	AQ A	AQ VA	AQ PA	IAS GI	IAS MH	IAS SE	SRASB CG	SRASB R
SRASB P	.47	.41	.34	.29	.63	.54	.65	.56	.74
SRASB R	.57	.47	.42	.34	.63	.60	.66	.65	
SRASB CG	.41	.34	.29	.22	.63	.54	.65		
IAS SE	.46	.39	.35	.28	.73	.74			
IAS MH	.36	.37	.35	.35	.70				
IAS GI	.48	.42	.32	.36					
AQ PA	.42	.56	.46						
AQ VA	.47	.54							
AQ A	.56								

Note: all correlations are statistically significant at $p \leq .001$

Table 8. Pearson's Bivariate Correlations Between Psychopathy and Aggression

	SRASB P R	SRASB	SRASB CG	IAS SE	IAS GI	IAS MH	AQ PA	AQ VA	AQ A	AQ H	LSRPS Factor II
LSRPS Factor I	.35	.32	.20	.38	.38	.36	.40	.36	.32	.28	.38
LSRPS Factor II	.40	.45	.30	.38	.36	.34	.46	.41	.52	.55	

Note: all correlations are statistically significant at $p \leq .001$

Table 9. Pearson's Bivariate Correlations Between Psychopathy and Perspective Taking

	IRI FS	IRI PT	IRI EC	IRI PD
LSRPS Factor I	-.14**	-.32***	-.45***	.03
LSRPS Factor II	-.03	-.30***	-.24***	.28***

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

Table 10. Pearson's Bivariate Correlations Between Perspective Taking and Social and Direct Aggression

	SRASB P	SRASB R	SRASB CG	IAS SE	IAS GI	IAS MH	AQ PA	AQ VA	AQ A	AQ H
IRI FS	.06	.14**	.19***	.04	.08	-.02	-.02	.03	.06	.16**
IRI PT	-.27***	-.25***	-.06	-	-	-	-.16**	-.15**	-	-.16**
				.26***	.23***	.28***			.24***	
IRI EC	-.30***	-.21***	-.07	-	-	-	-	-.13**	-	-.11*
				.33***	.28***	.34***	.25***		.22***	
IRI PD	.21***	.23***	.28***	.16**	.17**	.03	.29***	.34***	.41***	.47***

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

Table 11. Pearson's Bivariate Correlations Among IRI Perspective Taking Scales

	IRI PT	IRI PD	IRI EC
IRI FS	.21***	.24***	.42***
IRI EC	.55***	.08	

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

Table 12 Hierarchical Regression Predicting Physical Aggression as a Function of Psychopathy and Perspective Taking

Variables	B	SE B	β	ΔR^2	F for ΔR^2
1 st Step				0.064	746.777***
Sex	3.870	0.114	0.160***		
Paternal Educational Attainment	-0.839	0.022	-0.200***		
Maternal Educational Attainment	0.210	0.026	0.042***		
MCSDS	-.430	.019	-.104***		
2 nd Step				0.237	7453.573***
Sex	2.890	0.100	0.119***		
Paternal Educational Attainment	-0.752	0.019	-0.180***		
Maternal Educational Attainment	0.223	0.023	0.045***		
MCSDS	0.034	0.017	0.008*		
LSRPS Factor I	0.392	0.007	0.239***		
LSRPS Factor II	0.887	0.011	0.361***		
3 rd Step				0.006	179.494***
Sex	2.734	0.101	0.133***		

Variables	B	SE B	β	ΔR^2	F for ΔR^2
Paternal Educational Attainment	-0.727	0.019	-0.174***		
Maternal Educational Attainment	0.203	0.023	0.041***		
MCSDS	0.008	0.017	0.002		
LSRPS Factor I	0.364	0.008	0.222***		
LSRPS Factor II	0.903	0.011	0.367***		
IRI EC	-0.238	0.014	-0.088***		
IRI PT	0.191	0.013	0.075***		
4 th Step				0.020	324.050***
Sex	2.621	0.100	0.108***		
Paternal Educational Attainment	-0.745	0.019	-0.178***		
Maternal Educational Attainment	0.286	0.023	0.058***		
MCSDS	0.000	0.017	0.000		
LSRPS Factor I	0.356	0.008	0.217***		
LSRPS Factor II	0.892	0.011	0.363***		
IRI EC	-0.239	0.014	-0.089***		
IRI PT	0.188	0.012	0.074***		

Variables	B	SE B	β	ΔR^2	F for ΔR^2
LSRPS	0.001	0.002	0.002		
Factor I x IRI PT					
LSRPS	-0.030	0.002	-0.062***		
Factor II x IRI PT					
LSRPS	-0.051	0.002	-.141***		
Factor I x IRI EC					
LSRPS	0.069	0.003	0.118***		
Factor II x IRI EC					

Note: * $p \leq .05$ ** $p \leq .01$, *** $p \leq .001$

Table 13 Hierarchical Regression Predicting Verbal Aggression as a Function of Psychopathy and Perspective Taking

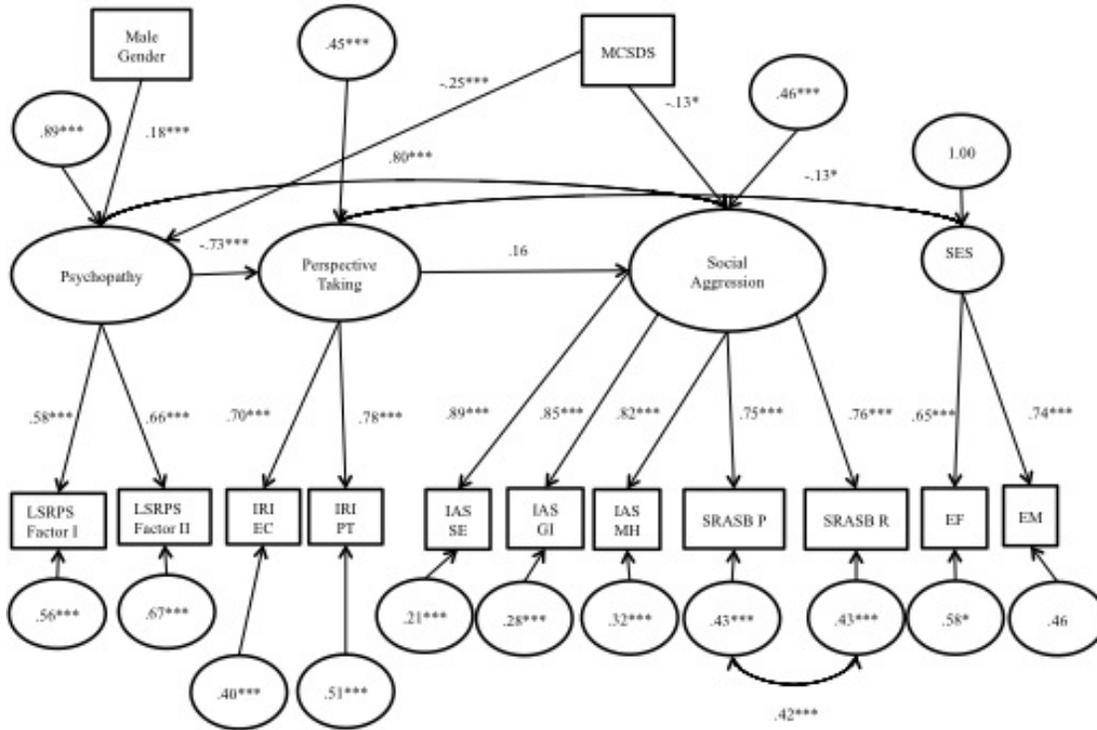
Variables	B	SE B	β	ΔR^2	F for ΔR^2
1 st Step				0.032	357.359 ***
Sex	-0.294	0.061	-0.023***		
Paternal Educational Attainment	-0.014	0.012	-0.007		
Maternal Educational Attainment	0.073	0.014	0.028***		
MCSDS	-0.385	0.010	-0.177***		
2 nd Step				0.191	405.294***
Sex	-0.841	0.056	-0.066***		
Paternal Educational Attainment	0.028	0.011	0.013**		
Maternal Educational Attainment	0.076	0.013	0.029***		
MCSDS	-0.178	0.010	-0.081*		
LSRPS Factor I	0.215	0.004	0.249***		
LSRPS Factor II	0.381	0.006	0.293***		
3 rd Step				0.002	52.583***
Sex	-0.775	0.056	-0.061***		

Variables	B	SE B	β	ΔR^2	F for ΔR^2
Paternal Educational Attainment	0.031	0.011	0.014**		
Maternal Educational Attainment	0.084	0.013	0.032***		
MCSDS	-0.187	0.010	-0.086***		
LSRPS Factor I	0.231	0.004	0.268***		
LSRPS Factor II	0.388	0.006	0.299***		
IRI EC	0.055	0.008	0.038***		
IRI PT	0.023	0.007	0.017***		
4 th Step				0.002	26.819***
Sex	-0.766	0.056	-0.060***		
Paternal Educational Attainment	0.024	0.011	0.011*		
Maternal Educational Attainment	0.089	0.013	0.034***		
MCSDS	-0.189	0.010	-0.087***		
LSRPS Factor I	0.227	0.004	0.263***		
LSRPS Factor II	0.388	0.006	0.299***		
IRI EC	0.051	0.008	0.036***		
IRI PT	0.018	0.007	0.014**		

Variables	B	SE B	β	ΔR^2	F for ΔR^2
LSRPS Factor I x IRI PT	-0.005	0.001	-0.024***		
LSRPS Factor II x IRI PT	-0.009	0.001	-0.036***		
LSRPS Factor I x IRI EC	-0.001	0.001	-0.008		
LSRPS Factor II x IRI EC	0.010	0.002	0.033***		

Note: * $p \leq .05$ ** $p \leq .01$, *** $p \leq .001$

Figure 1. Structural Regression Model 1.



Model Notation: Latent factors are represented by round shapes and measured variables by rectangular shapes. One directional arrows indicate a proposed causal relationship. Bidirectional arrows indicate non-causal relationship.

Model Abbreviations: LSRPS Factor I: Levenson Self Report Psychopathy Scale Factor I, LSRPS Factor II: Levenson Self Report Psychopathy Scale Factor II, IRI FS: Interpersonal Reactivity Index Fantasy Scale, IRI PT: Interpersonal Reactivity Index Perspective Taking, IRI EC: Interpersonal Reactivity Index Empathic Concern, IRI PD: Interpersonal Reactivity Index Personal Distress, SRASB Relational Aggression: Self-Report of Aggression and Social

Behavior Measure Relational Aggression Scale, IAQ Social Exclusion: Indirect Aggression Questionnaire-Aggressor Version Social Exclusion Scale, IAQ Malicious Humor: Indirect Aggression Questionnaire-Aggressor Version Malicious Humor Scale, IAQ Guilt Induction: Indirect Aggression Questionnaire-Aggressor Version Guilt Induction Scale, SES: Socioeconomic Status, Mother Ed.: highest level of education achieved by mother, Father Ed.: highest level of education achieved by father, Income: household income of the house in which spent the most time growing up.

VITA

Olga V. Berkout

University of Mississippi

Department of Psychology

University, MS 38677

oberkout@gmail.com

phone: 662-613-0008

fax: 662-915-5398

EDUCATION

Fifth Year Graduate Student

Clinical Psychology Ph.D. Program

University of Mississippi

Oxford, Mississippi

Current GPA: 3.82

Dissertation Title: *Identifying Dysfunction in Persistent Social Deviance: Perspective Taking as a Mediator of the Relationship between Psychopathy and Social Aggression*

University of Mississippi

Defended: 8/29/12

Degree to be awarded upon internship completion

Committee: Alan Gross, Ph.D. (Chair)

John Young, Ph. D.

Kelly Wilson, Ph. D.

John Bentley, Ph. D.

M.A. in Clinical Psychology

University of Mississippi

Degree Awarded: May 2011

Thesis Title: *The Impact of Relationship Context on Evaluations of the Sexual Behavior of Men and Women*

Committee: Alan Gross, Ph.D. (Chair)

John Young, Ph.D.

Nick Prins, Ph.D.

B.A. in Psychology

University of Maryland College Park

Degree Awarded: December 2007

CURRENT POSITION

Graduate Instructor for Psychology 201 (General Psychology) at the University of Mississippi (Practicum)

Supervisor: Alan M. Gross

Teaching an introductory psychology course

August 2012-ongoing

Adult Therapist for Communicare Community Mental Health Center (Practicum)

Supervisor: Dixie Church

Providing individual therapy to adults with serious mental illness.

January 2012-July 2012

Adult Therapist and Evaluator for Region IV Community Mental Health Center (Practicum)

Supervisor: Priscilla Roth-Wall, Ph.D.

Providing individual therapy to adults with serious mental illness and conducting pre-screenings for civil commitments.

August 2011-December 2011

Adult Therapist for Region IV Community Mental Health Center (Practicum)

Supervisor: Scott Gustafson, Ph.D.

Providing individual therapy to adults with serious mental illness

August 2010 to July 2011

Behavioral Consultant for Desoto County School System (Practicum)

Supervisor: Sheila Williamson, Ph.D.

Conducting functional behavioral assessments and developing and monitoring the implementation of behavior plans for children in a public school system.

July 2009 to May 2010

Research Assistant at the University of Mississippi

Assisted in data collection and examination

Supervisor: Elizabeth Kolivas, M.A.

September 2008-May 2009

Graduate Level Therapist (On Site Practicum Training)

Supervisor: Alan Gross, Ph.D.

Psychological Services Center at University of Mississippi

June 2009 to May 2010, September 2012 ongoing

Supervisor: John Young, Ph.D.

Psychological Services Center at University of Mississippi

September 2011 to May 2012

Supervisor: Kelly Wilson, Ph.D.

Psychological Services Center at University of Mississippi

September 2010 to May 2011

Supervisor: Scott Gustafson, Ph.D.

Psychological Services Center at University of Mississippi

June 2010 to August 2010, June 2011 to August 2011, June 2012 to August 2012

PROFESSIONAL PUBLICATIONS

Berkout, O. V., Kim, E. H., Gross, A. M., & Young, J. N. (Accepted 2012). From the Ivory Tower to an underserved rural population: Overcoming treatment barriers in public schools. *The Behavior Therapist*.

Berkout, O. V., Young, J. N., & Gross, A. M. (2011). Mean girls and bad boys: Recent research on gender differences in conduct disorder. *Aggression and Violent Behavior*, 16(6), 503–511.

PAPER PRESENTATIONS

Berkout, O.V., Kellum, K., Gross, A. M., & Wilson, K. G. (2012). To be the bad man: Perspectives on persistent social deviance. Presented at the 10th World Conference for the Association for Contextual and Behavioral Sciences, Washington, DC.

POSTER PRESENTATIONS

Allen, S., **Berkout, O.V.** & Gross, A. M. (2012). When I feel your pain: Perspective taking and relational aggression among young adults. Poster presentation at the 10th annual meeting of the Association for Contextual Behavioral Science, Washington, DC.

Rueff, W. T., **Berkout, O. V.**, Gross, A. M., Young, J. N., & Prins, N. (2011). Evaluations of sexuality: Impact of relationship context and traditional gender roles. Poster presentation at the 45th annual meeting of the Association for Behavioral and Cognitive Therapies, Toronto, Canada.

Berkout, O., Schnetzer, L., Heiden, L., Hight, T., Damon, J., & Young, J. (2010, November) *Relationship between loneliness and psychopathology in a large sample of children and adolescents*. Poster presentation at the 44th annual meeting of the Association for Behavioral and Cognitive Therapies, San Francisco, CA.

Berkout, O., Kim, E., Heiden, L., Hight, T., Damon, J., & Young, J. (2010, November) *Relationship between suicidality and aggressive behavior in a large adolescent sample*. Poster presentation at the 44th annual meeting of the Association for Behavioral and Cognitive Therapies, San Francisco, CA.

Kolivas, E., **Berkout, O.**, & Gross, A.M. (2009, November). *The sexual experiences survey: Endorsement consistency across old and new versions*. Poster presentation at the 43rd annual meeting of the Association for Behavioral and Cognitive Therapies, New York, NY.

MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS

Association for Behavioral and Cognitive Therapies (2010-present)

Dissemination and Implementation Sciences SIG (2010-present)

American Psychological Association (2009-present)

PROFESSIONAL ACTIVITIES

Program Committee Association for Contextual and Behavioral Sciences 2012

Workshop assistant for *Listening with ACT Ears, Seeing with ACT Eyes: Experiential Case*

Conceptualization preconference workshop with Kelly G. Wilson at the 10th annual meeting of the Association for Contextual Behavioral Science, Washington, DC 2012

Guest reviewer *Psychology of Violence* 2011

Guest reviewer *Clinical Psychology Review* 2011

Guest reviewer *Journal of Family Violence* 2010

RESEARCH PROJECTS IN PROGRESS

Psychopathy within Community Samples

Exploration of associations between psychopathy and behavioral constructs and temperamental variables in community samples in an attempt to identify potential protective factors and mechanisms of dysfunction.

Behaviorist Conceptualization of Psychopathy and Antisocial Behavior

Research and conceptual writing attempting to provide a behaviorist functional analytic account of psychopathy and antisocial behavior.

PROFESSIONAL REFERENCES

Alan Gross, Ph.D.

pygross@olemiss.edu

University of Mississippi

301A Peabody Hall

University, MS 38677

662-915-5398

Kelly Wilson, Ph.D.

kwilson@olemiss.edu

University of Mississippi

311C Peabody Hall

University, MS 38677

662-816-5189

John Young, Ph.D.

jnyoung1@olemiss.edu

University of Mississippi

310B Peabody Hall

University, MS 38677

662-915-1775