

PSYCHOPATHY AND THE ROLE OF ANXIETY
IN CHILDHOOD POPULATIONS

by

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A DISSERTATION

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

TUSCALOOSA, ALABAMA

2009

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ABSTRACT

The study examined the relationship between psychopathy and anxiety in 147 community boys. Children and their guardians completed self- and parent-report measures of child psychopathy (APSD) and child anxiety (MASC). In the literature, the psychopathy and anxiety association has been conceptualized as nonexistent, more a function of fearlessness, and a consequence of the impulsive lifestyle of psychopathy. The study suggested that anxiety may also be a reaction to fluctuating affective and interpersonal features that may diminish with age. Structural equation modeling was used to examine these hypotheses. The inverse relationship theory and the lifestyle consequence theory were not supported in the young (ages 8-14) community sample. However, the expected association with fearfulness and psychopathy was present, although it was limited to the impulsive lifestyle features. As posited, higher levels of self-report anxiety were associated with higher levels of psychopathy, including callous-emotional features. Age was not shown to be a significant moderator of the relationship. Regardless, there was a clear developmental distinction that conflicted with previous theory as well as the adult psychopathy literature. The current results suggest that anxiety may have important implications for the development and treatment of psychopathy in children.

DEDICATION

This dissertation is dedicated to everyone who stuck by me, who supported me, and put up with my occasional bouts of ranting, raving, and lunacy. I love you all. Mom and Dad, I promise I will get you those cruise tickets as soon as I can.

LIST OF ABBREVIATIONS AND SYMBOLS

a	Cronbach's index of internal consistency
df	Degrees of freedom
M	Mean
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
r	Pearson product-moment correlation
$<$	Less than
$>$	More than
$=$	Equal to
χ^2	Pearson's chi-square
χ^2/df	The chi-square to degrees of freedom ratio, or relative likelihood ratio (RLR)
β	Regression coefficient

ACKNOWLEDGMENTS

I would like to thank the peers, friends, and faculty members who have helped me with this dissertation, my education, and my clinical training. I would like to thank Randall Salekin, the chairman of this dissertation, for his guidance, encouragement, and all the cups of coffee. I would also like to express gratitude to my committee members, including Melissa Jackson, Mark Klinger, Wesley Church, and Sheila Black. I must also thank Jill Rosenbaum for helping me from afar when I was a thousand miles away from a growing pile of data packets. I will also thank David Lee, my internship training director, for letting me take multiple trips to Alabama and for listening to me ramble about research far removed from him. I need to thank the school district that let me collect data from their students and fill their conference room with boxes of mailing packets. I am also grateful to all of the children and parents who were kind enough to take the time to answer my lengthy research questionnaires. This gratefulness is doubled for one boy who wished me good luck on his packet AND sent back his dollar bill. Last, but never the least, I want to give a heart-felt thanks to my family and the close friends who supported me, no matter what. I could never have done this without you.

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CHAPTER 1

INTRODUCTION

Psychopathy is a personality disorder comprised of a network of affective, interpersonal, and behavioral traits. The disorder is strongly linked to stable and severe presentations of antisocial behavior, increased hostile institutional behavior, as well as higher rates of overall recidivism (Leistico, Salekin, DeCoster, & Rogers, 2008). Detecting psychopathy in children and adolescence holds inestimable value for our society (e.g. Forth, Hare & Hart, 1990; Hare, 1991; Lynam, 2002), as it may assist in the detection of chronic lawbreakers, as well as reveal the developmental pathways to the disorder (Frick & Marsee, 2006; Lynam, 1996, 1997; Salekin, 2006). In response to these potential benefits, the research on psychopathy in young populations has flourished in the last two decades. A number of studies have shown that child psychopathy appears to fit a conceptual presentation comparable to adult psychopathy (Lynam & Gudonis, 2005; Salekin, 2006). For instance, child psychopathy shares a similar constellation of personality features as the adult counterpart, predicts proactive and reactive aggression (Barry, Frick, Adler, & Grafeman, 2007), and evidences a relationship with future reoffending (Kubak & Salekin, 2009; Lynam & Gudonis, 2005). Uncovering the etiology of the disorder may provide insight into early intervention programming.

However, the downward extension of psychopathy remains a lively discourse, as there is empirical evidence of divergence as well as the aforementioned parallels (see Hart, Watt & Vincent, 2002; Seagrave & Grisso, 2002). One such contentious difference arose as child and adolescent psychopathy evidenced comorbidity with internalizing disorders, a significant departure from the adult psychopathy presentation (Frick, 2002; Kosson, Cyterski, Steuerwald, Neumann, & Walker-Matthews, 2002; Lilienfeld, 2003; Salekin, Neumann, Leistico, DiCicco, &

Duros, 2004). Within adult populations, the psychopathy construct has evidenced strong discriminant validity and has consistently exhibited a lack of association with most Axis I disorders from the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 1994; Hart & Hare, 1989; Lilienfeld & Andrews, 1996; Lovelace & Gannon, 1999).

Childhood disorders have a well-known reputation for coinciding with other forms of psychopathology that adult presentations do not typically exhibit (Caron & Rutter, 1991; Lahey, Loeber, Burke, Rathouse, & McBurnett, 2002; Last, Strauss, & Francis, 1987). Comorbidity plays a role in childhood disruptive disorders and antisocial behavior, particularly with attention-deficit/hyperactivity disorder (ADHD), depression, and anxiety (Caron & Rutter, 1991; Lahey et al., 2002; Loeber & Keenan, 1994; Russo & Beidel, 1993; Ulzen & Hamilton, 1998; Zoccolillo, 1992). Even prior to the current debate regarding the downward extension of child psychopathy, Rutter (1997) argued for the need to investigate co-occurring psychopathology. In doing so, Rutter believed childhood disorders could be better understood, particularly in how psychopathology develops over time and how it may be treated.

When viewed from a developmental perspective, co-occurring symptoms of other disorders may not be a severe concern, given that many childhood and adolescent samples evidence comorbidity (Salekin et al., 2004). While specifically examining the relation of comorbid psychopathology and psychopathy, Salekin et al. (2004) revealed that youth psychopathy evidenced extensive comorbidity with a spectrum of other disorders. Of particular note, Salekin et al. found slightly less comorbidity for psychopathy than the DSM-IV disruptive behavior disorders (CD, ODD, and ADHD), demonstrating that the psychopathy disorder may provide a cleaner conceptualization than the DSM-IV disruptive behavior disorders. Co-

occurring psychopathy and psychopathology should be expected and nonthreatening (Salekin & Frick, 2005). Rather than conceptualizing this interconnection as an imperfection of the psychopathy construct, it is essential that we uncover how these comorbid disorders interact with and relate to psychopathic traits, as well as how these relationships shift with development (Salekin et al., 2004; Rutter, 1997).

The most perplexing comorbidity may be the positive correlation between child psychopathy and anxiety seen across several studies (Brandt, Kennedy, Patrick, & Curtin, 1997; Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999; Kosson et al., 2002; Kubak & Salekin, 2009; Salekin, Leistico, Trobst, Schrum, & Lochman, 2005). The presence of anxiety is notably distinct from the seminal theoretical models of adult psychopathy, whose original conceptions denied association or promoted a negative relationship with anxiety (Cleckley, 1941; Lykken, 1957; Schmitt & Newman, 1999). From a modern perspective, the presence of anxiety offers exciting possibilities for the developmental processes of the disorder, as well as a positive predictive sign for treatment (Garfield, 1994; Salekin, 2002).

Conceptualizations of Anxiety and Psychopathy

Psychopathic notoriety initially included an ostensible lack of anxiety or neurotic conflict (Cleckley, 1976). Cleckley (1976) depicted anxiety as “remorse, uneasy anticipation, apprehensive scrupulousness, the sense of being under stress or strain” (p.257), and that psychopathic individuals are “as incapable of anxiety as of profound remorse.” Cleckley’s conviction regarding the disengagement of anxiety and psychopathy was strong enough for him to assert, “It is doubtful if in the whole of medicine any other two reactions stand out in clear contrast” (p.259). On the foundation of Cleckley’s foremost depiction of the model psychopath, earlier literature contends that psychopathy is inversely related to the anxiety construct or fearful

inhibition (Frick et al., 1999; Schmitt & Newman, 1999). In addition to being incapable of trait anxiety, Cleckley also posited that psychopaths have “immunity from such anxiety and worry as might be judged normal or appropriate in disturbing situations” (p.340). Resulting from Cleckley’s nonspecific explanation and use of anxiety, several different interpretations have appeared prominently in the literature.

Lykken (1957) supplemented the aforementioned conceptualization of psychopathy and anxiety by demonstrating that individuals meeting psychopathy criteria had lower levels of fear but no differences in levels of trait anxiety. The argument followed a galvanic skin response study which compared how inmate and community comparison groups reacted to electric shocks. Lykken found that the two groups evidenced little difference in their self-report of anxiety, yet the inmates demonstrated significantly lower galvanic skin responses to the electric shock than the community comparison. Accordingly, a low fearfulness causal model of psychopathy was offered to supplement the negative relation to anxiety put forward by Cleckley’s theory (Blair, 1999; Frick, 1998; Lykken, 1995). The low fearfulness model found additional support through Patrick’s (1994; Patrick, Bradley, & Lang, 1993) studies of startle reflex. Using emotionally-salient photographs and auditory bursts of white noise, Patrick and his colleagues (1993) found that psychopaths had a diminished startle response following aversive pictures. As noted by Patrick (1994), the absence of startle reflex during aversive stimulus processing in psychopaths is important theoretically because of the abundant evidence linking startle potential with fear. Recent research with children has found support for the fearlessness theory, as higher scores on psychopathy measurements appear related to higher scores on fearlessness scales (Kubak & Salekin, 2009).

More recently, arguments of trait anxiety in psychopathy have pointed towards the large amount of stressful events that individuals face from their risk-taking antisocial behavior (Frick, 1998; Lilienfeld, 1994). Antisocial behavior leads to numerous stressful events (e.g. incarceration, familial discord, criticism by others), which would cause high levels of negative affect in antisocial individuals, who would thusly obtain high scores on measures of trait anxiety as a result (Frick et al., 1999; Lilienfeld, 1994). Thus, any reports of anxiety are not due to temperament or personality, but instead a reaction to the events created through lifestyle, circumstance, or consequence. Not only does this line of reasoning run counter to Cleckley's theory, there is little research to strengthen this theory, and it has yet to be examined with more modern definitions of psychopathy that attempt to remove the antisocial behavior focus (see Cooke & Michie, 2001).

Evidence of Youth Psychopathy and Anxiety

Despite the extensive theoretical discussion and research seen in the adult literature, the relationship between anxiety and psychopathy is not clearly emerging within the child and adolescent research. While the relationship has appeared frequently in published findings (see Table 1), the presence of anxiety is often unexpected and unexplained (see Kosson et al. 2002; Vitale, Newman, & Bates, 2005). The presence of anxiety is in sharp contrast to adult populations, as psychopathy scores in adult offenders are generally independent of anxiety (see Schmitt & Newman, 1999). Several arguments have arisen to attempt to explain the positive relationship between anxiety and childhood psychopathy. For instance, the use of nonspecific anxiety conceptualizations, anxiety measures, and psychopathy models has done little to crystallize the understanding of youth psychopathy and anxiety in the literature. DSM-IV

conceptualizations of anxiety have not been comprehensively examined in relationship to childhood psychopathy.

Additionally, very few studies have examined psychopathy while also considering measures of DSM-IV anxiety disorders specifically designed for use with a young population (Kubak & Salekin, 2009). The majority used varying measures of trait anxiety (Frick et al., 1999; Kosson et al. 2002; Vitale et al., 2005) which may not detect alternative presentations of anxiety (e.g. somatic complaints) or anxiety specific to identifiable triggers (i.e. separation anxiety, social anxiety). By examining DSM anxiety specific to children and adolescents, we may better understand how anxiety interacts with psychopathy in younger populations.

In one of the first articles to target this interaction, Frick et al. (1999) expressly examined actual DSM-III-R anxiety disorder symptom criteria in the presence of childhood psychopathy. Participants were 143 children recruited from a university-based outpatient mental health clinic. Anxiety was assessed by the highly structured NIMH Diagnostic Interview Schedule for Children (DISC-2.3; Schaffer, Fisher, Piacentini, Schwab-Stone, & Wicks, 1992). Although the symptoms of overanxious disorder, separation anxiety disorder, social phobia and simple phobia were all assessed, they were not compared individually to the psychopathy assessment. Instead, the symptoms of these disorders were combined and used to form a composite index of trait anxiety. Using the Psychopathy Screening Device (PSD; renamed Antisocial Process Screening Device; APSD; Frick & Hare, 2001), a measure of youth psychopathy modeled directly after the Psychopathy Checklist-Revised (PCL-R; Hare, 1991), psychopathy impulsive/conduct problems were positively correlated with a DSM-III-R anxiety symptoms composite ($r = .19$), which led to Frick's support that the anxiety was a reaction caused by behavioral consequences. Furthermore, PSD callous/unemotional problems were negatively correlated to DSM-III-R anxiety ($r = -.33$).

Drawing from Lilienfeld (1994), Frick et al. contended that if anxiety relates to an individual's antisocial lifestyle and its consequences, it follows that the anxiety should relate to conduct problems rather than with callous and unemotional traits.

Frick (1999) stated that the confusing presence of anxiety in past studies was due primarily to investigators failing to separate the antisocial lifestyle dimension from the callous/unemotional dimension of psychopathy. Since several prominent psychopathy measures contain blended items assessing the callous/unemotional dimension and the impulsive/conduct problem dimension, Frick and colleagues contended that past measurements of psychopathy in relation to trait anxiety failed to discriminate between the two dimensions. While Frick et al. found evidence to support their model, this hypothesis has not universally fit other data sets in the literature (Kubak & Salekin, 2009), nor has the hypothesis been held up to a nonreferred community sample.

The surprising presence of anxiety contrasted by the dearth of anxiety specific research prompted Kubak and Salekin (2009) to explicitly examine co-occurring youth anxiety, psychopathy, and recidivism. Kubak and Salekin sampled a population of adjudicated children and adolescents using the Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson, & Hare, 2003), the APSD (Frick & Hare, 2001), and the Adolescent Psychopathology Scale (APS; Reynolds, 1998). The APS is a self-report multiscale measure developed to evaluate symptoms of clinical and personality disorders and distress in adolescents that are consistent with formal DSM-IV disorders. Kubak and Salekin found that the PCL:YV was correlated with both Separation Anxiety Disorder and Post-Traumatic Stress Disorder. The APSD was significantly correlated with both Separation Anxiety Disorder and PTSD. Within the overall sample, impulsive/conduct problem factors were positively correlated with multiple APS anxiety scales,

including Generalized Anxiety Disorder, Social Phobia, and Separation Anxiety Disorder. In the full sample, callous/unemotional traits were unrelated to anxiety disorders after the impulsive/conduct problems were controlled. When the full sample was separated by age group, children (aged 9 to 13) presented callous/unemotional traits that strongly associated with several anxiety disorder symptoms, while conduct problems were either independent or negatively connected with anxiety. Additionally, the study did not find any support for the theorized inverse relationship between psychopathy and anxiety. These findings were unexpected, and may indicate fundamental distinctions between child and adolescent psychopathy and its relationship with anxiety. The PCL:YV was also found to mediate the relationships between two types of anxiety (trait anxiety and fearlessness) and two types of reoffending (violent and nonviolent).

In addition to the two anxiety-specific studies listed above, multiple studies have also encountered comorbid anxiety during their investigations. For example, Kosson et al. (2002) found an unexpected moderate positive correlation between anxiety and PCL-YV assessments of adolescents on probation ($r = .25$). The Welsh Anxiety Scale (WAS; Welsh, 1956) was used to assess anxiety. The WAS is a 39-item true/false questionnaire, derived from the MMPI, that measures anxiety and negative affect. Gray (1982) has suggested that the construct assessed by the WAS is an amalgamation of neuroticism and introversion. Despite the widespread use of the WAS (e.g., Hiatt, Schmitt, & Newman, 2004; Newman, Widom, & Nathan, 1985), it may not be an exceptionally specific measure of anxiety in youth. Furthermore, Kosson and colleagues did not make any factor distinctions in their child studies (Kosson et al., 2002), thereby combining the behavioral and affective components of youth psychopathy. Kosson et al. (2002) were unable to explain the unexpected presence of anxiety in their sample, speculating that their sample may have been “atypical” on the dimension of negative affectivity. However, they noted that

“informal clinical accounts” indicate that anxiety, or “negative affectivity,” may be a “useful dimension” for distinguishing between adolescent and adult psychopathy. They estimate that while adults have established a “seamless veneer of affectlessness, adolescents with psychopathic traits have the same dispositions (impulsivity, callousness, manipulateness, etc.) but have not yet developed the same impenetrable mask of sanity” (p.102, Kosson et al., 2002). In other words, while adolescents may exhibit characteristics and behaviors consistent with adult psychopathy, they have not developed to the point to where they are free of distress or worry regarding their personality or actions.

Vitale et al. (2005) also implemented the Welsch Anxiety Scale while studying response modulation in 16-year-old psychopaths. While Vitale and colleagues were more interested in finding low anxiety psychopaths, they noted surprisingly high rates of WAS anxiety. The correlations between APSD and WAS scores in their sample were $r(169) = .46, p < .05$, for males and $r(158) = .53, p < .05$, for females. Roughly 30% of both males and females fell into a “high-APSD, high-WAS” group, yet Vitale et al. did not make any mention or explanation of that group in their discussion of their findings.

In a study addressing the association between personality theory and the concept of child and adolescent psychopathy, Salekin et al. (2005) found that psychopathy measurements made with the APSD and the Child Psychopathy Scale (CPS; Lynam, 1996) correlated with neuroticism to a high degree in a male adolescent offender population ($r = .41, r = .33$, respectively). On the factor level, APSD impulsive/conduct and callous/unemotional problems continued to relate to neuroticism ($r = .42, r = .32$, respectively). While not anxiety per se, neuroticism can be defined as an enduring predisposition to experience negative emotional states. Individuals who score high on neuroticism are more likely than the average to experience

such feelings as anxiety, anger, guilt, and depression (Matthews & Deary, 1998). However, neuroticism includes several factors that may be quite dissimilar from anxiousness, including angry hostility, depressiveness, self-consciousness, impulsivity, and vulnerability (Brinkley, Newman, Widiger, & Lynam, 2004), therefore making it difficult to draw comparisons to anxiety symptoms.

Regardless, Salekin et al. (2005) stated that the presence of anxiety may have noteworthy repercussions for the treatment response of youth, particularly if they experience distress about their “predicament or personality development.” As first suggested by Frick et al. (1999), Salekin et al. argue that youth may feel anxiety over environmental factors such as incarceration, educational truncation, or a criminal record. However, they continue by proposing a person-environmental interaction in the development of psychopathy. Anxiety may go through a developmental shift over time, with the youth experiencing less and less anxiety as they continue to get into trouble (Salekin et al, 2005).

Additionally, anxiety disorders frequently appear with severely conduct-disordered adolescents (Zoccolillo, 1992b) and incarcerated juveniles (Ulzen & Hamilton, 1998). Ulzen & Hamilton’s (1998) study found that approximately 63.3% of incarcerated adolescents had 2 or more psychiatric disorders, including separation anxiety disorder (30.6%), overanxious disorder (26.5%), and posttraumatic stress disorder (24.5%). Bauer and Kosson (2000) found 80 detained adolescent girls presenting psychopathy with a great number of psychiatric diagnoses, including PTSD (19%), even after removing CD from their analyses.

Not all published findings found significant relationships between anxiety and psychopathy. O’Neill, Lidz, and Heilbrun (2003) found no correlation between PCL-YV scores and anxiety ($r = -.09$) in adolescents, though they assessed ‘general anxiety’ through the

hyperarousal items of the Posttraumatic Diagnostic Scale (PDS; Foa, 1995). The PDS is a 49-item self-report instrument designed to aid in the diagnosis of posttraumatic stress disorder and to quantify the severity of symptoms. Only the hyperarousal subscale of the PDS was used, as O'Neill et al. (2003) stated that the re-experiencing and avoidance subscales of the PDS were characteristic of posttraumatic stress disorder and not general anxiety. The PDS was validated on a diverse sample of men and women who had experienced a variety of high-magnitude stressors, including women's shelters, fire stations, and ambulance corps (Foa, et al., 1997). However, the validation study participants were between the ages of 18 and 65 years, while O'Neill et al.'s participants were male adolescents, ages 15 to 18, who were receiving substance abuse treatment in a partial hospital program. The PDS may not generalize appropriately toward children, adolescents, and general anxiety.

Skeem and Cauffman (2003) found anxiety unrelated to the two-factor PCL:YV (RCMAS Anxiety; $r = -0.04, -0.05, 0.01$ for Total, Factor 1, and Factor 2 scores, respectively). The Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1979, 1997) is a 37-item self-report measure designed to assess anxiety symptoms in children between 6 and 19 years of age. However, they found that the ADI, DAE, and IIB dimensions on the Youth Psychopathic traits Inventory (YPI; Andershed, Kerr, Stattin, & Levander, 2002) were negatively correlated with RCMAS anxiety.

Construction of Youth Psychopathy

The personality-orientated conceptualization of psychopathy is credited to Cleckley (1941, 1976), who delineated the primary psychopathic traits and original diagnostic criteria that provided groundwork for modern psychopathy research (Lilienfeld, 1998). Cleckley (1941, 1976) indicated that the foremost components of the disorder were the interpersonal and

affective characteristics of the “psychopathic personality.” Cleckley (1941, 1976) placed less emphasis on the behavioral dimensions of psychopathy, although he noted that psychopaths typically engaged in antisocial behavior and were unconcerned with achieving life goals. The most prominent operationalization of these criteria has been Hare’s (1991) creation and revision of the Psychopathy Checklist (PCL-R), often referred to as the “gold-standard” of adult psychopathy assessment. Factor 1 (F₁) is comprised of the primary personality traits and Factor 2 (F₂) consists of behavioral characteristics (Harpur, Hare, & Hakstian, 1989). Scholars and clinicians alike have readily agreed on the presence of F₁ traits, which include egocentricity, callousness, lack of guilt, shallowness, and irresponsibility (Lilienfeld, 1998). F₂ encapsulates the antisocial and social deviant behaviors of psychopathy, notably impulsivity and criminality. As the PCL was developed and validated on largely adult offender populations, the measure has an extensive focus on criminal behaviors (Lilienfeld, 1998).

The Psychopathy Checklist: Youth Version (PCL:YV, Forth, Kosson, & Hare, 2003) is a direct descendant of the PCL-R, with measure items remaining predominantly the same, but rewritten for adolescents. Correspondingly, a large section of child psychopathy research has assumed that childhood and adolescent psychopathy is equivalent to the adult presentation (Lynam, 1998). This assumption has not been unanimously accepted, as several researchers remain skeptical about the existence of youth psychopathy (Edens, Skeem, Cruise, & Cauffman, 2001; Hart et al., 2002; Seagrave & Grisso, 2002). For example, some argue that psychopathic traits observed in adolescence may be developmentally transient characteristics that will resolve by adulthood (Seagrave & Grisso, 2002). While PCL items such as “failure to accept responsibility” or “need for stimulation” may be noteworthy indicators in adulthood, these characteristics may be normative in children and adolescents. However, it is difficult to argue

that the traits and behaviors measured in adult psychopaths do not first have their roots in childhood and adolescence (Hare, 1996).

The growing interest in psychopathy development has redirected focus to internal features rather than the criminality inherent in many of the assessed adult populations. Cooke and his colleagues (Cooke & Michie, 2001; Cooke, Michie, Hart, & Clark, 2004) put forward a personality-based definition that emphasized the interpersonal styles, impulsive behaviors, and affective experiences of psychopathy over criminality. The Cooke and Michie (2001) model includes three important dimensions (Frick, Bodin, & Barry, 2000): First, an arrogant, deceitful interpersonal style (ADI), which includes self-centeredness, lying, conning, manipulation, deceitfulness, a grandiose sense of self-worth, glibness, and superficial charm. The second factor, deficient affective experience (DAE), contains low empathy, low remorse, low guilt, a weak conscience, shallow affect, callousness, and a failure to accept responsibility for actions. The third facet contains an impulsive or irresponsible behavioral style (IIB), including excitement-seeking, a lack of long-term goals, impulsiveness, failing to think before acting, and a parasitic lifestyle. The growing evidence indicates that the three-factor model fits the psychopathy data better than traditional two-factor models (Cooke & Michie, 2001; Kosson et al., 2002; Lee, Vincent, Hart, & Corrado, 2003; Skeem & Cauffman, 2003).

Subsequently, youth psychopathy researchers have begun to suggest that problematic behaviors should be classified under the disruptive behavior disorders while psychopathy should concentrate on the affective, interpersonal, and motivational factors behind these behaviors (Frick, 2002; Kazdin, 1997; Salekin, 2006). Frick et al. (2000) revealed a similar three-factor structure, consisting of Narcissistic, Impulsivity, and Callous–Unemotional dimensions, which provided the best structural fit for a large community sample of elementary schoolchildren.

Callous-unemotional traits (or emotional detachment) in children has received a lot of individual attention (see Barry, Frick, DeShazo, & McCoy, 2000), as evidence suggests that early callous traits may lead to more severe, persistent forms of antisocial behavior later in life (Loney, Taylor, & Butler, 2007). If high scorers on the Narcissistic, Impulsivity, and Callous–Unemotional dimensions are shown to behave and act indisputably different than other adolescents, it would not be unwarranted to deem youth with psychopathy features as psychiatrically disordered (Farrington, 2005).

With the shift away from antisocial behavior and back toward affective and interpersonal factors, it becomes vital that researchers determine how psychopathy might relate to forms of internalizing psychopathology that were once considered a problematic presence. Yet, there is still confusion within the literature on what to expect from this developmental overlap. Lynam (1997) stated that if childhood psychopathy is to be in the same nomological network as adult psychopathy, then assessed childhood psychopathy should negatively correlate with internalizing disorders but positively correlate with externalizing disorders. Again, such an argument is thwarted by the number of child and adolescent studies where psychopathy (Bauer & Kosson, 2000; Frick et al., 1999; Kosson et al., 2002; Kubak & Salekin, 2009; Salekin et al. 2005; Vitale et al., 2005) presents paralleled to anxiety, an internalizing symptom theoretically in “contrast” with psychopathy (Cleckley, 1976, p.259).

Implications for Treatment

While the presence of anxiety may not have fit with older conceptualizations of psychopathy, it offers possibilities for the developmental processes of the disorder, as well as a positive predictive sign for treatment (Bergin & Garfield, 1994; Garfield, 1994; Salekin, 2002). Perhaps the most important reason to investigate the beginning pathways of psychopathic traits is

to enhance our early childhood interventions. The extension of the psychopathy construct to youth is essential for identifying psychopathic features at their childhood emergence, hopefully a period where they are more mutable and susceptible to treatment (Frick et al., 1998, 2001, 2003; Salekin, 2002).

Past research indicates that anxiety and psychopathy may undergo developmental changes from childhood through adulthood, with anxiety diminishing over time as individuals persist in psychopathic behaviors (Kubak & Salekin, 2009; Kosson et al., 2002; Salekin et al., 2005). Co-occurring anxiety could indicate the critical juncture where children are most susceptible to treatment. Anxiety may appear in a child who is still uneasy about engaging in a low empathic or self-centered interpersonal style. Anxiety due to negative circumstances may also act as a protective factor that encourages a child or adolescent to change (Salekin, 2006), particularly if the child is ill at ease about the consequences of their actions or their personality development (Salekin et al., 2005).

Psychopathy is associated with behavior that may cause numerous stressful events, such as incarceration, familial discord, criticism by others, all of which would cause high levels of anxiety as a result (Caron & Rutter, 1991; Lilienfeld, 1994). However, the anxiety is not necessarily stable, and as the youth becomes accustomed to being in trouble, it causes him or her less discomfort (Salekin et al., 2005). Treatment is likely to be the most successful when the youth is still experiencing the initial period of anxiety (Salekin et al., 2005). From a clinical perspective, the detection of comorbid anxiety could be a useful indicator of positive treatment outcome (Garfield, 1994). Anxiety caused by negative events may be a protective factor against psychopathy development for children that can encourage positive adjustment in the youth (Salekin, 2006).

Proactive community screening of anxiety and psychopathy is useful for several reasons. Psychopathy treatment is most successful during earlier developmental stages when affective and interpersonal features are not fully stable. Personality traits are often considered less stable in children than adults, as children are experiencing many developmental changes that help shape who they will become as adults (Frick et al., 2003; Roberts & Del Vecchio, 2000). Furthermore, evidence has suggested that personality traits are not even stable in adults until around 30 years old (Finn, 1987; McCrae & Costa, 2003). Researchers have hoped that the downward psychopathy extension would identify these features while they are less stable and more susceptible to treatment. In his meta-analysis of 42 youth and adult psychopathy treatment studies, Salekin (2002) noted that although all ages benefit from therapy, there was a significantly higher rate of success with young clients. However, many children with psychopathic traits are not detected until they come to the attention of legal officials. This is in part due to the reluctance to research psychopathic features in children (see Seagrave & Grisso, 2002) and the juvenile court preferences to keep younger behavior disordered children with their families. Earlier screening could guide families toward treatment while the disorder is theoretically easier to treat.

Screening of children may play another important role, as the manifestation of anxiety or psychopathy features may identify distress occurring due to environmental or family factors that may be alleviated through targeted family intervention. Environmental risk has been theorized to contribute to the development of psychopathic features (Karpman, 1941, 1945; Lykken, 1995). Psychopathy has been suggested to be a heterogeneous construct with multiple etiology subtypes, many of which have been sociocultural in nature (e.g., McCord & McCord, 1964; Poythress, Skeem, & Lilienfeld, 2006). For example, in a divergence from the primary Cleckley

psychopath, Karpman (1941, 1945) proposed a secondary psychopath whose features were due to unresolved conflicts from environmental factors. McCord and McCord (1964) argued early on in the conceptualization of psychopathy that abuse, neglect and rejection were among the most significant pathways in the development of psychopathic characteristics. Lykken (1995) also proposed that psychopathic features could be shaped from environmental factors, including ineffective or impoverished parenting. Poythress and colleagues (2006) found support for the link between abuse, psychopathy, and antisocial behavior.

Early childhood detection and intervention would also allow for treatment modalities that are impossible in later developmental periods, but are able to target core characteristics of the psychopathic disorder, such as parent training. If the psychosocial etiological theories are correct, then an additional treatment of psychopathic individuals may be possible. Treatment modalities that focus on extensive parent-child training and stress reconnecting youth with the community may benefit children with psychopathic features (Salekin, 2006). Hawes and Dadds (2005) explored how callous-unemotional traits would affect the treatment outcome and therapy processes with young conduct-problem boys. They found a significant relationship between callous-unemotional traits and the effectiveness of the disciplinary component of treatment (i.e., time-out; Hawes & Dadds, 2005). The effectiveness of reward strategies (i.e., descriptive praise) was successful with boys high in callous-unemotional traits, and some participants exhibited a drop in callous-unemotional ratings across treatment. Methods emphasizing rewarding experiences in a positive parent-child relationship may hold excellent potential for treatment gains for these children. Hawes and Dadds suggested that the early assessment of callous-unemotional features in combination with other recognized risk factors would allow children to be treated with more effective individualized intervention. Ignoring callous-unemotional features

would significantly impair treatment as well as parental motivation to improve their relationship with their children. As noted by Hawes and Dadds, recognizing individual risk factors is necessary to inform treatment. Psychopathy may be a construct best understood from an equifinality standpoint. Anxiety and familial stress screening could identify the psychosocial factors that are causing the most distress in the child and their primary family system.

Finally, it is unknown when youths begin the developmental change that causes them to resist the anxiety once caused by their actions. The behavioral and emotional expressions of psychopathy may vary at different ages, and the currently used psychopathy instruments do not assess for stability, as they do not refer specific time periods (i.e., the last year) and therefore are not sensitive to change over time. Developmentally speaking, it becomes critical that researchers begin conducting studies with younger samples that have not already developed to the point of criminal behaviors. Cross-sectional and longitudinal surveys are necessary for the establishment of what risk factors are preceding and predicting psychopathy (Farrington, 2005).

CHAPTER 2

METHODOLOGY

Purposes and Hypotheses of the Current Study

The rapid expansion of the psychopathy construct to children and adolescents has unearthed multiple conceptual questions. The issue of anxiety is particularly intriguing since it contradicts past theoretical approaches. Within modern definitions of psychopathy, however, anxiety may have important implications concerning the development and treatment of psychopathy. Earlier screening for psychopathy features and anxiety may detect a segment of youth who are ripe for treatment or uncover protective factors that prevent the formation of psychopathy traits. While some research has come forward to examine co-existing child psychopathy and psychopathology, the relationship between child psychopathy and anxiety deserves a greater exploration.

Based on preceding research and contemporary definitions of psychopathy (Cooke & Michie, 2001; Cook, Michie, Hart, & Clark, 2004; Frick, 1998) and the potential connection between anxiety (e.g., Cleckley, 1941; Frick et al., 1999; Kubak & Salekin, 2009; Lykken, 1957; Salekin et al., 2005;) and early psychosocial risk factors (Frick et al., 2003; Megargee & Golden, 1973; Morretti, Holland, & Peterson, 1994; Schuster, 1976), the present study examined the connection between childhood psychopathy and anxiety, and then compared the results with competing models of the relationship. One unique feature of the current study is that it utilized advanced statistical techniques to evaluate the strengths of several theoretical models existing in the literature. In addition, the study placed an emphasis on child specific anxiety symptoms and an expanded model of child psychopathy that separates affective, interpersonal, and behavioral features.

Specifically, the study examined Cleckley's inverse anxiety theory, fearlessness (Lykken, 1957; Patrick, 1994), the lifestyle consequence model (Frick et al. 1999; Lilienfeld & Penna, 2001), and a full psychopathy anxiety response model, which expected the relationship to exist beyond lifestyle and link with affective and interpersonal traits. The current study was one of the few to collect community data on childhood psychopathy and anxiety. Both parent-report and child self-report formats were gathered. Structural equation modeling (SEM) was applied to test for causal paths among anxiety and psychopathy. In addition, given that psychopathy may have a psychosocial etiology, supplemental data collection included the presence of family stress events.

The current study assessed the construct validity of the child-report APSD through confirmatory factor analysis (CFA) to increase the understanding of psychopathy and its underlying dimensions in a middle-class community population. The study investigated whether the APSD two- and three-factor structure could be replicated with a community sample of children who had not already been identified clinically or through the juvenile justice system. A 39-item anxiety measure (i.e., the Multivariate Anxiety Scale for Children [MASC]; March, Parker, Sullivan, Stallings, & Conners, 1997) was also assessed. While the MASC has received previous factor structure investigations with CFA (Baldwin & Dadds, 2007; Olason et al., 2004; March et al., 1997, 1999; Grills-Taquechel, Ollendick, & Fisak, 2008), it has never been used in combination with psychopathy investigations.

The study wished to increase the knowledge of the relation between the features of childhood psychopathy and child-specific symptoms of anxiety. Several sets of models were compared via SEM to see how the APSD three-factor model of psychopathy related to anxiety. Considering previous research with childhood psychopathy and anxiety, the study first

hypothesized that anxiety symptoms positively associate with overall childhood psychopathy features in contrast with the inverse relationship theory. Second, as an indirect examination of the fearlessness theory (Lykken, 1957; Patrick, 1994), it was hypothesized that high levels of fearful behaviors (as reported through the MASC Harm Avoidance scale; March et al., 1997) would be inversely related to psychopathy features. Third, the study examined the lifestyle consequence theory in which anxiety is primarily a reaction to an individual's antisocial lifestyle (Frick et al., 1999, Lilienfeld, 1994). Specifically, anxiety is a response to the consequences of an impulsive and irresponsible lifestyle rather than temperament. In such a case, it follows that anxiety should posit a positive association to the impulsive or irresponsible behavioral style of psychopathy, but keep an inverse relationship with narcissistic and callous-unemotional traits in children. Finally, the study examined an anxiety response model which hypothesized an expanded version of the lifestyle consequence theory. It was posited that anxiety would correlate positively to narcissistic and callous-unemotional features and would also be moderated by age (Kubak & Salekin, 2009).

Demographic variables were also collected and controlled for, including individual characteristics and family variables (SES, household size, guardians present, type of guardian). As a supplemental investigation, six domains of family stress (Loss-Death, Loss-Separation, Social Adversity, Negative Family Environment, Academic Difficulties, and Peer Rejection) theorized to be associated with psychopathy (Frick et al., 2003; Megargee & Golden, 1973; Morretti et al., 1994; Schuster, 1976) and anxiety (Grover, Ginsburg, & Jalongo, 2005) were compared to reported anxiety and psychopathy features. It was expected that a greater number of family stress events would positively associate with concurrent anxiety and psychopathy reports,

as the buildup of risk factors has been shown to be additive in relation to a greater risk of psychopathology (Kessler, Davis, & Kendler, 1997).

Participants and Procedure

To address the studies primary questions, a community sample of school-age boys and their guardians was recruited. The difficulty with using a community sample of youth is that there are lowered expectations for the numbers of participants who score moderate-to-high on measures of psychopathy features (Frick et al., 2003). Very few studies currently exist that have reported findings from longitudinal community samplings of psychopathic traits (Dadds, Fraser, Frost, & Hawes, 2005; Frick et al., 2003; Frick & Dantagnan, 2005) or examining psychopathic features in young children (Kimonis, Frick, & Boris, 2006). Currently, there are no normative samples that can provide an approximate prevalence of psychopathic traits (Frick et al., 2003), although only one-third of clinic-referred children have exhibited high levels (Christian, Frick, Hill, & Tyler et al, 1997). While rates in a non-referred community sample were expected to be low, the current study focused on the affective and narcissistic features. High levels of criminality were not expected in a child community sample. Although the clinical utility of self-report psychopathy measures is still under debate, there are growing indications that self-report measures can identify psychopathic traits that are associated with criminological outcomes (Vaughn & Matthew, 2006). While repeated longitudinal measures were out of the scope of the current study, consent forms requested permission to contact all participants on three annual year intervals.

Permission to conduct research was obtained from The University of Alabama Institutional Review Board and from the education management system of a southern school system located in an affluent suburb. School management could not directly release directory

information to the investigator, so the test battery was distributed by mail directly from the educational system to all boys in the third to seventh grade. Mail survey is often the most cost-effective method to collect a large representative sample of community parent and child responses (Dillman, 2007). Consultations with school officials also suggested that less intrusive methods were preferred by education management systems. Furthermore, extensive evidence suggests that people are more likely to give honest answers to self-administered forms than to interview questionnaires (Fowler, Roman, & Di, 1998). Data collection procedure was balanced between Dillman's Tailored Design Method (TDM; 1972, 2007), a system of procedures for conducting empirically valid mail surveys, and the requirements of the education management. TDM is firmly based on principals of social exchange theory (Dillman, 2007).

Prior to the mailing, informational flyers were sent home with boys through their classrooms. In the mailing packet, a cover letter, parent and child consent forms, and child- and parent-report test batteries were sent to the homes of all third through seventh grade boys. Questionnaire batteries were mailed with a \$1 dollar bill rather than a promise for payment for returned protocols. Much research has shown that "token" incentives given with the request to complete a questionnaire, a form of social exchange, consistently improves response rates (Church, 1993; Dillman, 2007; James & Bolstein, 1992). James and Bolstein (1992) found that response rates from individuals were higher when they included checks for one to five dollars (64%-71%) than the promise of fifty dollar checks once the questionnaire was completed (57%) or no compensation at all (52%). Additionally, Johnson and McLaughlin (1990) found 10% higher response rates when they included a five dollar check then when they promised a ten dollar check upon questionnaire return. As recommended by Dillman (2007), cover letters were limited to one page and briefly covered information that was given in more detail on the consent

forms. Parents read a request for help, reasons why they were selected, the usefulness of the research project (i.e. early screening to see if anxiety can affect the stability of personality traits), a promise of confidentiality, a mention of the token of appreciation, as well as the contact information of the main researcher via mail, email, or telephone. The cover letter concluded with a thank you and a real signature to add further personification to the request. Outgoing and return envelopes were sent using regular postage stamps, as business reply envelopes have the tendency to be thrown away while the presence of stamps on return envelopes has been shown to positively influence response rates (Armstrong & Luske, 1987; Dillman, 1991).

Stressing confidentiality, the letter stated that none of the information gathered from the study would be available to the school. Test batteries did not record the names of participants. Hard copies of directory information were not provided to the investigator by education management. During the consent procedure, parents were able to provide contact information if they wanted to participate in longitudinal data collection. Otherwise, they were not required to provide phone numbers or addresses participate in the current study. Battery responses were linked to an assigned numerical value. Since confidentiality is of special concern because of the age of the participants, all participant names were made anonymous through numerical coding. The child and parent must each have consented to the study to allow the youth to participate. Families were informed that they could withdraw from participation at any time without any negative consequence, and that all of their information will be destroyed. All data is stored in a secure room at The University of Alabama.

Completed questionnaires were sent to the university in self-addressed envelopes. To check whether variations in return rates were associated with sample characteristics, the means of the school system demographics were compared to the current sample and found to be

concurrent. The sample consisted of 147 boys who were 8–14 years old ($M = 11.2$, $SD = 1.4$) and their primary guardian. Families were recruited from 5 elementary schools and 2 middle schools of an affluent suburb of a large southern city. The schools all belonged to the same city school district. On the Hollingshead Two-Factor Index of Social Position (ISP; Hollingshead, 1971), a measure that combines educational level and occupational prestige level to categorize individuals into five social classes, families were distributed among Class I (upper class, 8.5%), Class II (upper-middle class, 53.5%), Class III (middle class, 28%), Class IV (working class, 2.5%), while 7.5% were unreported. Education in parents consisted of completion of some high school (2%), high school graduate (1%), some college (8%), college/university degree (48%), some graduate education (13%), and graduate degrees (28%). The majority of families (87%) comprised two caregivers; 13% comprised sole parents. Families were primarily Caucasian-American (88%), with smaller representations of Asian-American (5.6%), African-American (3.5%), South-Asian American (1.4%), and Latin-American (1%) families. Guardians reported that their boys earned predominately A's (67%) and B's (27%). Boys belonged to the 3rd Grade (8%), 4th Grade (13%), 5th Grade (21%), 6th Grade (23%), and 7th Grade (35%). A small amount of boys were reported to have received mental health treatment at some point in their lives (13%).

Measures

Antisocial Process Screening Device (APSD; Frick & Hare, 2001; see Appendix C).

The APSD, formerly known as the Psychopathy Screening Device, is comprised of 20 behavioral items to provide parent, teacher, and self-report ratings of youth psychopathy. Modeled directly after the Psychopathy Checklist-Revised (PCL-R; Hare, 1991) to contain content appropriate for pre-adolescent children (age 6 -13), each item is rated on a three-point scale (0 - not at all true, 1

- sometimes true, 2 - definitely true). The items combine to provide a total score that can range from 0 to 40. Also, some items from the PCL-R were deleted because they were inappropriate for children (e.g. parasitic lifestyle) or the wording of items was changed to be more developmentally appropriate (Frick et al., 1994; Frick & Hare, 2001). Questions include statements like “Your emotions are shallow and fake,” or “You do risky or dangerous things.” A total score is generated by summing scores across the subscales. Total and subscale scores can be converted to *T*-scores with a mean score of 50 and standard deviation of 10.

Originally designed to evaluate psychopathy traits based on ratings by parents and teachers in preadolescent children (Frick et al., 1994), the APSD has since been modified as a self-report scale for use with children and adolescents. Owing to its direct descent from the PCL-R, the APSD is considered a valid measure of psychopathy. The APSD has acceptable reliability and validity in both community and clinic-based samples (Barry, Frick, & Killian, 2003; Frick et al., 1994, 2000). However, the APSD does have slight discrepancies in its assessment across ethnicity and culture, so these factors require continued analysis.

In their original presentation of the instrument, Frick, O'Brien, Wooten & McBurnett (1994) presented a two-factor structure for the APSD consisting of an Impulsive/Conduct Problems factor and a Callous Unemotional factor. However, a later study (Frick et al., 2000) revealed a three-factor structure, consisting of a seven-item Narcissism dimension (e.g. “thinks he/she is more important than others”), a five-item Impulsivity dimension (e.g. “acts without thinking”), and a six-item Callous–Unemotional dimension (e.g. “is concerned about the feelings of others”). In their investigation of psychopathy structure in children, Frick and his group (2000) collected parent and teacher ratings on the APSD for a community sample of 1,136 elementary schoolchildren between the ages of 6 - 13 years (mean age: 10.6 years) and a

comparison clinic sample ($n=160$; mean age: 8.5 years). Factor analysis showed that both the two-factor solution and the three-factor structure were acceptable, although the three-factor solution provided better fit in the community sample. Frick and his team recommended using the three-factor model as it is likely more stable given that it was observed in a large community sample and the two-factor solution has only been found in smaller samples (Frick et al., 2001). While Frick et al. (2000) used parent and teacher reports, it has since been suggested that children 7 and older offer useful self-reports (Dadds et al., 2005).

Given the findings of Frick et al. (2000), the three-factor structure should provide the best fit for a sample of nonclinical children: Narcissism, sum of Items 5, 8, 10, 11, 14, 15, and 16; Callous–Unemotional, sum of Items 3, 7, 12, 18, 19, and 20; and Impulsivity, sum of Items 1, 4, 9, 13, and 17 (Vitacco, Rogers, & Neumann, 2003). Vitacco et al. (2003) showed that, with a cut-off of 20 on the APSD, sensitivity and specificity of .75 and .78 respectively, a positive predictive power on the PCL:YV of 47% could be obtained. When items are omitted, factor and total scores are prorated. For comparison, analyses will also be conducted using the older two-factor model. However, the three-factor solution has been suggested to be is more pertinent to community samples. Specifically, community youth are likely less behaviorally disordered than hospitalized children (Fite, Greening, Stoppelbein, & Fabiano, 2009). To avoid the pejorative connotations of the label psychopathy, the APSD will be renamed the Personality Screening Device for the purposes of community data collection.

The measure has evidenced satisfactory internal consistency for a large normative sample of 3rd to 7th graders (Cronbach's $\alpha = .93$ for teacher-report and .86 for parent-report), and modest cross-informant agreement ($r = .43$) using parent and teacher reports (Frick & Hare, 2001). The APSD has evidenced acceptable stability in repeated administrations over a 4-year

interval among community sample children (Frick, Kimonis, Dandreaux, & Farell, 2003). Additionally, validity examinations of the APSD and PCL show moderate correlations between measure total scores (r s between .30 and .40). The APSD self-report measure appears to identify psychopathic traits that are associated with criminological outcomes (Vaughn & Matthew, 2006). Demonstration of predictive validity was supported in a study of sexual offenders (Caputo, Frick, & Brodsky, 1999), with the CU factor showed significant relationships with violence. The APSD has shown predictive validity with constructs including program noncompliance ($r = .31, p < .05$) and recidivism ($r = .33, p < .05$; Falkenbach, Poythress, & Heide, 2003), total scores ($r = .38, .36, p < .001$) and subscale scores (CU & I) with violent behavior measures (Kruh, Frick, & Clements, 2005), and significant correlations with criminal records ($r = .22, p < .05$), clinical records ($r = .30, p < .01$) and incarcerated violence ($r = .25, p < .01$; Murrie, Cornell, Kaplan, McConville, & Levy-Elkon, 2004). Construct validity is supported by moderate correlations between the APSD total score and the Children's Symptom Inventory-4 (Gadow & Sprafkin, 2002) Oppositional Defiant Disorder Scale, $r = .65$; Conduct Disorder Scale, $r = .56$; Impulsive-Hyperactive Scale, $r = .64$; and Inattention-Disorganized Scale, $r = .63$, for a community sample (Frick & Hare, 2001).

Reliability analyses were conducted to examine the internal consistency of the factors (see Table 18). The alpha scores were moderate to high. Internal consistency was acceptable for the present sample. The child self-report APSD (α for total scale = .78; α for the Narcissism subscale = .62; α for C/U subscale = .74; α for the Impulsivity subscale = .51) was slightly less consistent than the parent report APSD (α for total scale = .84; α for the Narcissism subscale = .76; α for C/U subscale = .79; α for the Impulsivity subscale = .58), which was consistent with alpha coefficients for parents completing ratings for a normative sample (Frick & Hare, 2001; α

for total scale = .86; α for C/U subscale = .70; α for the Narcissism subscale = .76; α for the Impulsivity subscale = .68). This suggests that the Callousness factor is a more cohesive subscale than the narcissism and impulsivity dimensions. This is not an unexpected finding since the latter two scales assess a wider array of issues.

Multidimensional Anxiety Scale for Children (MASC; March et al., 1997). The MASC is a 39-item 4-point Likert-style self-report scale that has undergone extensive psychometric evaluation (March, 1998). The MASC main and subfactors include physical symptoms (tense/restless and somatic/autonomic), harm avoidance (anxious coping and perfectionism), social anxiety (humiliation/rejection and public performance fears), and separation anxiety/panic. In a clinical outpatient sample, the social anxiety subscale significantly predicted social phobia and the harm avoidance subscale significantly predicted generalized anxiety disorder (Grills-Taquechel, Ollendick, & Fisak, 2008). A Total Score is available, as well as an Anxiety Disorder Index, which helps differentiate children with a diagnosis of an anxiety disorder from children without an anxiety disorder. The MASC factor structure has been cross-validated in clinical and population samples (March, 1998) and has been shown appropriate to use across children ages 8-19 years, gender, and race (March, 1998; March et al., 1997). The four-factor structure was replicated using a community sample of Icelandic children, even providing a better fit for the data than a one-factor model (Olason, Sighvatsson, & Smarj, 2004). In a study examining the MASC factor structure in an African-American Adolescent sample, there was overlap in the underlying structure of anxiety between the original MASC studies, although items reflecting separation anxiety did not emerge as a separate factor (Kingery, Ginsburg, & Burstein, 2009). Another confirmatory factor analysis study confirmed that the original MASC four-factor structure was suitable for Chinese adolescents (Zou & Yao, 2007).

Concerning test-retest reliability, the MASC had average intraclass correlation coefficients of 0.79 for the 3-week interval and 0.93 for the 3-month interval (March et al., 1997). The MASC has evidenced satisfactory convergent and divergent validity, as it significantly correlates with the Revised Children's Manifest Anxiety Scales, but does not correlate with the Children's Depression Inventory (March et al., 1997; Olason et al., 2004). Additionally, the MASC provided adequate discrimination between anxious and ADHD youths (March et al., 1997), as well as anxious and depressed children and adolescents (Rynn, Barber, & Khalid-Khan, 2006). A parent-report version of the MASC given to a community sample has been shown to adequately fit the four-factor structure obtained by March et al (1997) during his clinical sampling for the original MASC child self-reports (Baldwin & Dadds, 2007; Grills-Taquechel et al., 2008).

Reliability analyses were conducted to examine the internal consistency of the MASC factors. The alpha scores were moderate to high. Internal consistency was acceptable for the present sample. The child self-report MASC (α for total scale = .84; α for the Physical Symptoms subscale = .79; α for Harm Avoidance subscale = .71; α for the Social Anxiety subscale = .78; α for the Separation/Panic subscale = .71) was slightly less consistent than the parent report MASC (α for total scale = .86; α for the Physical Symptoms subscale = .79; α for Harm Avoidance subscale = .73; α for the Social Anxiety subscale = .84; α for the Separation/Panic subscale = .75). These findings were uniform with alpha coefficients from previous studies that examined child (Baldwin & Dadds, 2007; March et al., 1997) and parent reports (Baldwin & Dadds, 2007) of the MASC.

The Modified Life Events Schedule (mLES; see Appendix E). The Life Events Schedule (LES) is a widely accepted parent-report measure of 30 stressful live events across the

past six months (Coddington, 1972). Test-retest coefficients ranging from .87 to .89 indicate strong reliability estimates (Spence, Najman, & Bor, 2002). The LES has been used in multiple studies to demonstrate a consistent link between life events and child mental and physical health (see Velez, Johnson, & Cohen, 1989). Grover, Ginsburg, and Ialongo (2005) modified the LES to include items that represent negative home environments and additional social adversity factors. The current study utilized the Grover et al. version of the LES, but including parental report items for academic performance and peer relations. As utilized by Grover et al., childhood risk factors will be grouped into six domains: loss-death, loss-separation, social adversity, negative family environment, academic difficulties, and peer rejection. To reinforce the structure of the above domains, two clinical psychology graduate students were separately asked to sort the 31 items into the six possible categories. 100% agreement was achieved between the two separate classifications. Parents are asked to answer “yes/no” regarding each risk factor item. For the current study, each item will be scored “1” for presence and “0” for absence for inclusion in the predictor domains.

Socioeconomic Demographics Questionnaire (see Appendix F). Using the Four Factor Index of Social Position (ISP; Hollingshead, 1971; see Appendix G), family SES was measured on the basis of the education and occupation of the participants’ parents (averaged, if both available). The Hollingshead Two-Factor ISP classifies occupation into one of nine categories. Occupational prestige is rated on a 7-point scale, from 1 (i.e., higher executives, proprietors of large concerns, and major professionals) to 7 (i.e., unskilled employees). An individual’s education level is also rated on a 7-point scale. Educational attainment was categorized as less than 7th grade, 8th through 9th grades, 10th through 11th grades, high school graduate, some college education, college graduate, some graduate school, or graduate school. These two ratings

are then combined as follows: $(7 \times [\text{occupation}]) + (4 \times [\text{education}])$. Predetermined cutoff scores then assign individuals to one of five social classes. These social classes correspond roughly with upper class (Class I), the middle classes (Classes II and III), the working class (Class IV), and the poor (Class V). Lower scores represent higher socioeconomic status.

In all analyses, the ISP was used as a categorical variable, with patients in Classes II and III (middle-class) as the reference group, and comparing both participants in Class I (upper class) and in Classes IV and V (working class and poor) to those in Classes II and III. The ISP, education, and family income are the most commonly used indicators of SES in psychotherapy research (Garfield, 1994) and allow for comparison with this literature. In particular, Liu et al. (2004) found, in their review of empirical research articles that included SES, that the ISP was the most commonly used measure of SES.

CHAPTER 3

RESULTS

Hypotheses concerning the relationships between psychopathy traits and anxiety were evaluated using Structural Equation Modeling (SEM). SEM provides separate estimations of relationships among latent variables and manifest indicators (measurement models) and the hypothesized relationships among constructs (structural model). SEM techniques reduce measurement error and provide simultaneous estimations of multiple linear equations and the ability to evaluate competing theoretical models based on comparative fit indices. Data was analyzed using Maximum Likelihood estimation in SEM. First, preliminary analyses were conducted and descriptive statistics were obtained to determine whether the data met the basic assumptions of SEM. Second, confirmatory factor analysis (CFA) was conducted to determine the fit of the measurement models (Byrne, 2001). The main advantage of confirmatory factor models is that prior knowledge can be accounted for when formulating a model (Blunch, 2008). Consequently, confirmatory models open up for various methods for testing the models. The third phase of data analysis included the simultaneous testing of the measurement and structural models. Finally, fit statistics were compared to evaluate which model provided the best fit for the data.

Many recent studies have conducted SEM and CFA to analyze the various dimensional conceptualizations of psychopathy and its links to various constructs. SEM has seen considerable use in the adult (see Neumann, Kosson, & Forth, 2006; Neumann, Hare, & Newman, 2008) and child (see Fite et al., 2009; Salekin, Neumann, Leistico & Zalot, 2004; Vitacco, Neumann, Caldwell, Leistico, & Van Ryboek, 2006) psychopathy literature. CFA provides two major advantages over exploratory factor analysis. It allows investigators to statistically test the fit of a

specified model as well as the comparative fit of competing theoretical models (Schumaker & Lomax, 2004). However, there has been some discussion in the SEM literature as to the sample size requirements to maintain power and obtain stable parameters and standard errors (see Ding, Velicer, & Harlow, 1995; Hu & Bentler, 1999; Kline, 2005; Schumaker & Lomax, 2004).

Fortunately, modern advances in SEM have made analyses less sensitive to sample size (see Blunch, 2008; Kline; 2005; Schumaker & Lomax, 2004). While χ^2 was originally used as the frontline index of fit, χ^2 indices are sensitive to larger sample sizes. To minimize this sensitivity, the χ^2 to degrees of freedom ratio (χ^2/df), or relative likelihood ratio (RLR), is often examined, with ratios of < 3 generally considered representative of a good fit with the data (Kline, 2005). Several other fit indices are now commonly utilized in determining good fit: the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and the Tucker-Lewis index (TLI). Hu and Bentler (1999) also recommend using the RCFI (Bentler, 1995), which avoids underestimation of fit and sampling variability associated with other fit indices. Ding and colleagues (1995) found numerous studies (e.g., Anderson & Gerbing, 1988) that were in agreement that 100 to 150 subjects is a minimum satisfactory sample size when constructing structural equation models.

Numerous studies have utilized SEM with modest samples to explore psychopathy factors, as well as to explore the links between psychopathy dimensions and various constructs. Using a sample of 122 detained children and adolescents, Salekin et al. (2004) conducted SEM and CFA analyses of the *Psychopathy Checklist: Youth Version* (PCL:YV) factors to examine the link between psychopathy dimensions and intelligence. With a moderate sample, Salekin et al. found good modeling results which supported their hypothesis that the ADI (arrogant and deceptive interpersonal style) dimension was positively related to traditional verbal and

nontraditional forms of intelligence. Later, with a modest sample of 130 adolescent offenders, Salekin, Brannen, Zalot, Leistico & Neuman (2006) again used confirmatory factor analyses to determine that the three- and four-factor models of the PCL:YV evidenced a good fit on their sample and were justifiable. Specifically, results provided support for a modification of Cooke and Michie's (2001) three-factor model, which provided an adequate fit for the PCL:YV items.

Vitacco, Rogers, Neumann, Harrison, & Vincent (2005) directly compared factor models with confirmatory factor analysis on a small sample of 94 male, mentally disordered offenders. They found that a nested three factor model and a four-factor model both provided excellent fit with their sample. While they note that a larger sample size may have led to more robust findings and cross-validation of their factor solutions, Vitacco et al. cite Bentler (1995) to reason that their sample size is adequate to conduct confirmatory factor analyses. Vitacco, Neumann, & Wodushek (2008) used SEM to evaluate the relations between the *Psychopathy Checklist: Screening Version* (PCL:SV) factors and full-scale intelligence (FIQ) in 100 males detained in a county jail. Despite their moderate sample size, Vitacco et al. (2008) found robust findings that were consistent with other recent SEM studies on psychopathy and IQ (Neumann & Hare, 2007; Salekin et al., 2004; Vitacco et al., 2005). Vitacco and colleagues (2006) used SEM to successfully evaluate the relationship between psychopathy and instrumental aggression on a population of 122 incarcerated male offenders. SEM results indicated that a 4-factor model of the PCL:YV accounted for 20% of the variance for instrumental violence.

As final examples of strong SEM psychopathy studies with moderate sample sizes, Poythress, Dembo, Wareham, & Greenbaum (2006) used confirmatory factor analysis to examine the fit of the three-factor APSD model on 165 juvenile offenders. Lastly, Odger and

colleagues (2005) evaluated PCL:YV psychopathy traits, victimization, and violence within a SEM framework with a moderate population of female juvenile offenders ($N = 125$).

As the Multidimensional Anxiety Scale for Children (MASC) is the measure of anxiety in the current study, empirical precedence for SEM and moderate sample sizes was also investigated. In a study examining the MASC factor structure in a sample of 118 African-American Adolescents, there was overlap in the underlying structure of anxiety between the original MASC study (March et al., 1997), although items reflecting separation anxiety did not emerge as a separate factor (Kingery et al., 2009). The four-factor structure was replicated using a community sample of Icelandic children, even providing a better fit for the data than a one-factor model (Olason et al., 2004). Another confirmatory factor analysis study confirmed that the original MASC four-factor structure was suitable for Chinese adolescents (Zou & Yao, 2007). Based on the precedence of previous psychopathy studies with adults and children, as well as the extensive SEM literature, the current studies' use of CFA and SEM analyses with a moderate sample size appears valid.

Preliminary Results

A number of examinations were performed prior the main psychopathy-anxiety investigations. Preliminary analyses were performed to examine the assumptions of normality, linearity and homoscedasticity. Skewness was less than 2.0 and kurtosis was less than 2.5 for the majority of the main study variables, suggesting that nonnormality of the data was not a concern (Kline, 2005). Univariate skewness for most APSD items was under 1. However, both child-report and parent report MASC items of 30 ("I get scared riding in the car or bus") and 35 ("My hands shake") evidenced positive skewing and kurtosis. This does not necessarily indicate a problem with the scale, as many social science measures have score that are skewed (Pallant,

2007). For instance, measures of depression are often positively skewed in community populations, as most people record few symptoms of depression. Regardless, MASC items 30 and 35 were logarithmically transformed to decrease their nonnormal distribution. Similar transformations were made for several of the mLES scales (e.g., academic difficulties, peer rejection).

Second, missing values were inspected. Cases exhibiting a large amount of missing data (>10%) or irregular reporting (i.e., missing all self-report data) were not included in the final analyses. For initial analyses, pairwise exclusion was used to exclude cases only if they were missing the data required for the specific analyses. As SEM analyses require complete variable groups, missing values for variables with no greater than 10% missing data were replaced with randomly chosen values (for categorical variables) or average scores of the entire sample (for continuous variables). Mean substitution for small amounts of missing data is recommended over listwise and pairwise deletion of cases, as it avoids the possibility of excluding a large number of subjects (Schumacker & Lomax, 2004). The final N included 147 complete cases. Finally, to investigate the relationship between anxiety and psychopathy (including relationships with domains of psychopathy separately), the APSD, MASC and the mFLE were investigated using Pearson product moment correlation coefficients.

Descriptive statistics of the study variables are presented in Tables 9-11. 12% of boys and 12% of guardians reported APSD scores of 20 or higher. The upper quartile of child self-reported APSD scores began at 17. Based on the *T*-Score interpretive guidelines from the MASC manual (March et al., 1997), 12.6% of boys self-reported MASC Total scores that are considered *Above Average* or higher. Demographic variables (e.g., ethnicity, child age, family ISP) were also included in the initial correlation analyses. For the most part, demographic variables were

unrelated to the main study variables. However, child age and previous mental health treatment evidenced small associations with several study variables.

Child age was negatively related to child-reported Harm Avoidance ($r = -.227, p < .01$), child-reported Separation/Panic ($r = -.359, p < .01$), and child-report MASC Total score ($r = -.174, p < .05$). Corresponding negative relationships were found with parent-report Harm Avoidance, Separation/Panic, and MASC Total scores. Child age was positively related to the child-reported APSD Total score ($r = .261, p < .01$), child-report Callousness ($r = .278, p < .01$), parent-report Callousness ($r = .259, p < .01$), and the parent-reported APSD Total. Previous mental health treatment was minimally related to child-reported Physical Symptoms ($r = .171, p < .05$), APSD Total score ($r = .190, p < .05$), Narcissism ($r = .255, p < .01$), and Impulsivity ($r = .205, p < .05$), but negatively related to child-report Harm Avoidance ($r = -.236, p < .01$). In regards to parent-reported measures, previous treatment associated with Physical Symptoms ($r = .305, p < .01$), Separation/Panic ($r = .181, p < .05$), APSD Total score ($r = .273, p < .01$), Narcissism ($r = .242, p < .01$), and Impulsivity ($r = .280, p < .01$), but negatively related to child-report Harm Avoidance ($r = -.208, p < .05$).

Pearson correlation analyses were used as an initial step to examine the study's main hypotheses (see Tables 12-15). It was hypothesized that the MASC anxiety scales would correlate positively and significantly with the latent APSD psychopathy factors, except for the Harm Avoidance scale, which was anticipated to negatively correlate with psychopathy features. There were considerable relationships between the variables of interest in the child self-reports (see Table 12). Although there was a negligible correlation between the MASC total score and the APSD total and its dimensions, the APSD total evidenced small-to-moderate correlations with MASC Physical Symptoms ($r = .305, p < .01$) and Social Anxiety ($r = .304, p < .01$), a

negative correlation with Harm Avoidance ($r = -.277, p < .01$), and yet no convergence with Separation/Panic. APSD Narcissism demonstrated minor relationships with Physical Symptoms ($r = .262, p < .01$) and Social Anxiety ($r = .203, p < .05$). APSD Callousness was modestly associated with Social Anxiety ($r = .273, p < .01$) and minimally with Physical Symptoms ($r = .166, p < .05$). APSD Impulsivity was moderately associated with Physical Symptoms ($r = .273, p < .01$), negatively associated with Harm Avoidance ($r = -.367, p < .01$), and had a small correlation with Social Anxiety ($r = .175, p < .05$). Separation/Panic was not associated with any of the APSD dimensions.

Guardian reports evidenced similar patterns as the self-report relationships (Table 13). There remained a negligible correlation between the MASC total score and the APSD total ($r = .177, p < .05$) but not with APSD dimensions. The APSD total evidenced moderate correlations with MASC Physical Symptoms ($r = .367, p < .01$) and Social Anxiety ($r = .368, p < .01$), no convergence with Separation/Panic, and a negative correlation with Harm Avoidance ($r = -.343, p < .01$). In fact, Harm Avoidance negatively correlated with all three APSD dimensions. APSD Narcissism demonstrated medium relationships with Physical Symptoms ($r = .346, p < .01$) and Social Anxiety ($r = .260, p < .01$). APSD Callousness had moderate convergence with Physical Symptoms ($r = .217, p < .01$) and Social Anxiety ($r = .279, p < .01$). APSD Impulsivity was moderately associated with Physical Symptoms ($r = .357, p < .01$) and Social Anxiety ($r = .374, p < .01$).

Parent-child agreement was examined for the MASC and APSD scales and was expected to be low but significant. As seen in Table 14, parent-child agreement on the MASC scales actually evidenced moderate-to-large cross-source correlations. The correlations ranged from .39 (Harm Avoidance), .468 (Social Anxiety), .537 (Physical Symptoms), .707 (Separation/Panic).

Parent-child agreement on the APSD scales was also moderate-to-large. The correlations ranged from .336 (Narcissism), .586 (Callousness), and .573 (Impulsivity). Considering cross-scale correlations, several interesting relationships emerged. Parent ratings of Harm Avoidance were moderately and negatively related to all child-report APSD scale scores. Parent ratings of Social Anxiety were positively related to child-reported Callousness ($r = .249, p < .01$) and Impulsivity ($r = .206, p < .05$). Parent-report Callousness was moderately related to child-report Social Anxiety ($r = .284, p < .01$). Parent-report Impulsivity had medium convergence with child-report Physical Symptoms ($r = .249, p < .01$), a small correlation with child-report Social Anxiety ($r = .213, p < .05$), and a minor negative relation with child-reported Harm Avoidance ($r = -.175, p < .05$). Based on the strong cross-source correlations and emphasis on internalizing symptoms, the following SEM analyses were conducted on the child-report APSD and MASC measures.

Reliability analyses for the parent and child-report APSD and MASC scales are presented in Table 18. Although the alpha values indicate satisfactory internal consistency for the APSD total scores, the alpha values for the child-reported Narcissism subscale and both Impulsivity scales are below the conventionally recommended criterion value of .70 (Pallant, 2007). All MASC total and scale scores had acceptable internal consistency.

Pearson correlation analyses were also used to examine the relationship of the main study scales with the Modified Family Life Events Questionnaire that was completed by guardians (see Table 15). Negative Family Environment was strongly related to multiple scales, including parent- and child-ratings of Physical Symptoms and Separation/Panic, child-report Social Anxiety, and parent-reported Narcissism ($.327, p < .01$) and Impulsivity ($.287, p < .01$). Negative Family Environment was unrelated to either report of Callous-Unemotional or Harm Avoidance. It was intriguing that Negative Family Environment was strongly related to parent-reports of two

psychopathy factors, but did not even approach significance with child-reported psychopathy. Following this trend, Social Adversity was associated with all parent reports of APSD Psychopathy, but interestingly, not so for the child-report measures. The presence of Peer Rejection was related to both reports of Social Anxiety and Narcissism, as well as parent-reported Callous-Unemotional.

In preparation of the SEM analyses, partial correlations were also used to control for the effects of measure factors upon each other when testing a single factor's relationship with other study variables. This method was effectively used in previous studies examining psychopathy and anxiety (see Frick et al., 1999; Kubak & Salekin, 2009). As seen in Table 16, APSD partial correlations found small relationships between child-report Narcissism and the Physical Symptoms (.168, $p < .05$) and Social Anxiety (.162, $p < .05$) scales. Callousness significantly converged with Social Anxiety (.235, $p < .01$). Impulsivity was negatively associated with Harm Avoidance (-.312, $p < .01$). The partial relationships indicated no significance between APSD scales and Separation/Panic. The loss seen from zero-order to partial correlations suggests multicollinearity effects present within the three APSD factors. In Table 17, the MASC factors continued to evidence strong relationships even after controlling for the other factors. Physical symptoms associated with Narcissism (.238, $p < .01$) and Impulsivity (.242, $p < .01$), Harm Avoidance was negatively related to Impulsivity (-.363, $p < .01$), and Social Anxiety converged with Narcissism (.163, $p < .05$) and Callousness (.272, $p < .01$). Separation/Panic remained completely unrelated to the psychopathy factors.

Structural Equation Modeling

According to MacCallum et al.'s (1996) heavily cited article on power analysis and sample size in SEM, adequate power for the recommended tests can be achieved with relatively

moderate levels of N when df is not small. For instance, with $df = 100$, a power of 0.80 for the test of close fit is achieved with $N = 132$ (MacCallum, Browne, & Sugawara, 1996). MacCallum et al.'s (1996) state that their results indicate that if df is high, adequately powerful tests of fit can be carried out on models with moderate N . As recommended by modeling experts and used by previous studies examining psychopathy (see Salekin et al., 2006; Vitacco et al., 2006), data file input to the modeling software always involved raw items (i.e., simply allowing the APSD items to load directly onto one of the three respective psychopathy factors). The degrees of freedom for even the least complex models tested in the present study ($df = 132$ and $df = 110$) were higher than 100, thus the present sample size ($N = 143$) was adequate for the analyses.

Measurement Model. To specify the measurement models included in the overall structural model, multiple indicators were used for each of the MASC and APSD dimensions. Confirmatory factor analysis is typically designated under the umbrella term of factor analysis, but it is also the measurement model of structural equation modeling (Blunch, 2008). It is meaningless to analyze the structural part of the model if the measurement model does not show satisfactory reliabilities (Blunch, 2008).

Four commonly reported fit indices were utilized in the current study: χ^2 /degrees of freedom, RMSEA, CFI, and Tucker-Lewis index (TLI). χ^2 indices are sensitive to larger sample sizes, and to minimize this sensitivity, the χ^2 to degrees of freedom ratio (χ^2/df), or relative likelihood ratio (RLR), is often examined, with ratios of <2 generally considered representative of a good fit with the data (Blunch, 2008; Kline, 1998, 2005). The RMSEA indicates a close model fit at values less than .05 and an adequate fit at values between .05 and .08. (Blunch, 2008; Browne & Cudeck, 1989; Hu & Bentler, 1999; Kline, 2005; Tabachnick & Fidell, 2001). Finally, TLI and CFI values equal to or greater than .90 indicate that a model is a good fit with

the data, while values below .80 should be taken seriously (Arbuckle, 2006; Bentler, 1990; Blunch, 2008). The RLR expresses the degree of fit with that the model proposes to reproduce the data observed, taking into account the degrees of freedom in the model (Kline, 2005). The CFI compares the existing model fit with a null model, which identifies no relationship among the observed variables. The RMSEA index assesses the error caused by approximation, or the lack of fit of the model to the population covariance matrix. It compensates for model complexity measuring the discrepancy per degree of freedom between the model and the data (Blunch, 2008).

Confirmatory factor analysis was conducted using the AMOS 7.0 statistical software. AMOS is one of the most user-friendly modeling programs, as structural models can be drawn directly or inferred by matrix specification through a simplified programming language. AMOS also is an appealing software package because of its designed compatibility with SPSS. Data can be read as correlation matrices with variable standard deviations, as covariance matrices, or as raw data. In the current study, raw data was input into AMOS once the model had been specified with appropriate variable names. As nonnormality of the data did not appear to be a problem (Kline, 2005), models were accordingly estimated using maximum likelihood estimation. Maximum Likelihood has been used in several well-cited articles conducting factor analyses with the APSD (see Fite et al., 2009; Frick et al., 2000; Vitacco et al., 2003) and the MASC (Baldwin & Dadds, 2007; Olason et al., 2004; March et al., 1997, 1999; Grills-Taquechelet al., 2008). The Maximum Likelihood method is considered one of the most widely used and robust estimates in structural equation modeling (Andersen & Gerbing, 1988; Chou & Bentler, 1990; Schumaker & Lomax, 2004).

The measurement model of the APSD (Figure 1) was constructed by allowing measure items to load directly onto respective factors. Specifically, the three-factor solution (Frick et al., 2000) was followed, with the Impulsivity, Narcissism, and C/U dimensions estimated with the present sample. Individual item loadings have been used to good effect in previous studies with the APSD (e.g., Poythress et al., 2006; Vitacco et al., 2003). Confirmatory factor analysis procedures revealed an excellent fit for the children's reports on the APSD measurement model, $\chi^2(131, N= 143) = 138.243, p = .315, RLR (\chi^2/df) = 1.055, CFI = .982, TLI = .979, RMSEA = .020$. Also, it was necessary to correlate the residual errors for the following pairs of APSD items: 5 and 19. Correlated error terms are similar to the results of the Cooke and Michie (2001) study and may have been necessary because of item redundancy among the respective pairs. This appears sound considering the content of the two items (Item 5: My emotions are shallow and fake; Item 19: I hide my feelings or emotions from others). As shown on Table 19, most items load significantly on their respective factors. However, APSD items 5, 17, and 20 exhibit factor loadings that are below the traditionally accepted value of .30 (Pallant, 2007). These findings are very similar to previous studies that found low loading on items 5 and 20 (see Poythress et al., 2006; Vitacco et al., 2003).

Furthermore, the Impulsivity and Narcissism latent factors were observed to be highly correlated ($r = .88$), suggesting that these two factors shared 77% of their variance. This high correlation suggests that these two factors could be combined into one factor (Kline, 2005). However, as the model provided an excellent fit, as well as to maintain coherence with previous studies, the three-factor model was kept as the measurement model for the current study. For comparison purposes, a CFA was also carried out on the two-factor solution of the APSD (Callous-Unemotional, 6 items; Impulsivity/Conduct Problems, 11 items; see Frick et al., 1994).

In contrast to the three-factor solution, however, the two-factor model provided a poor fit to the data, $\chi^2(103, N= 143) = 185.89, p <.01, RLR (\chi^2/df) = 1.805, CFI = .727, TLI = .682, RMSEA = .075$.

A similar confirmatory factor analysis was implemented with the four-factor solution of the MASC (March, 1997). Previous research has suggested that the data would be best explained by a four correlated factors model in which items loaded upon latent factors related to physical symptoms, harm avoidance, social anxiety, and separation/panic (Baldwin & Dadds, 2007; Olason et al., 2004; March et al., 1997, 1999; Grills-Taquechel et al., 2008). Individual items were loaded onto factors individually to match earlier CFA analyses with the MASC (Baldwin & Dadds, 2007; Grills-Taquechel et al., 2008). The results of the confirmatory factor analysis suggested a reasonable fit with the four correlated factor solution in line with previous findings. For the child report on the MASC, there was good fit for some indices (RLR = 1.57, RMSEA = .063) but not for others (CFI = .701). The child self-report indices correspond with those found by Olason et al. (2004) and Baldwin and Dadds (2007), but lower than what was found by March et al. (1999) and Grills-Taquechel et al. (2008). It was noted, however, that March et al. (1999) allowed error terms to covary with the latent factors which would account for a better model fit. These CFA results suggest that the four-factor structure of the MASC obtained by March et al. (1997) fit adequately to the data. When all of the items were loaded onto a single factor, the resulting model fit was quite poor (RLR = 2.045, CFI = .447, TLI = .416, RMSEA = .086). This matches Baldwin and Dadds' (2007) forced one-factor model. A second-order factor model, with the four MASC factors indicating a Total Anxiety latent variable, also resulted in several poor indices (RLR = 1.518, CFI = .730, TLI = .711, RMSEA = .060).

As seen in previous studies examining the MASC factor structure (Olason et al., 2004; Yao et al., 2006), a concurrent parcel-based approach was also implemented in addition to item-based CFA. The factor structure of the MASC scale is comparatively complex, as it has 39 items loading onto four scales. This approach bypasses the complexity of large numbers of items by grouping them into parcels (sometimes referred to as testlets) under each factor. Parceling can also be used to reduce response bias in individual items or when there is concern that the CFA model is being rejected due to statistical artifact rather than by limitations of the models themselves (Kishton & Widaman, 1994; Raykov, 1998). Following Blunch's (2008) guidelines, MASC items were randomly allocated into 5, 4, 4, and 4 parcels for Harm Avoidance, Physical Symptoms, Social Anxiety, and Separation/panic scales respectively. Each parcel contained either two or three items to pass Blunch's (2008) summated scores procedure. Scree plots showed that every parcel was unidimensional, and the alpha coefficients varied between 0.62 and 0.79. Overall the dimensionality and reliabilities were satisfactory, particularly in view of the small number of items per parcel. The resulting model (Figure 2) provided a stronger relative fit indices than the item-based CFA (RLR = 1.645, CFI = .890, TLI = .863, RMSEA = .067).

Model Specification. As discussed earlier, multiple indices were used to assess model fit. The Chi-square to degrees of freedom ratio (χ^2/df ; RLR, Wheaton, Muthén, Alwin, & Summers, 1977), the Comparative Fit Index (CFI; Bentler, 1990), the Tucker-Lewis Index (TLI; Tucker & Lewis, 1973), and the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993) is reported for each model. For the Chi-Square to degrees of freedom ratio, values below 2 indicate adequate fit. For the CFI and TLI, values of .90 or greater reflect adequate fit of the model. MacCallum et al. (1996) noted that RMSEA values of .05 or less

indicate good fit, values up to .08 indicate reasonable fit, values ranging from .08-.10 indicate mediocre fit, and values greater than .10 indicate poor fit.

Standardized path coefficients make available effects comparisons across models (Blunch, 2008; Kline, 2005). In addition, two indices were also inspected to see which of the three models shown in Figures 3-6 represented the most simple and adequate fit to the data. Akaike's (1987) information criterion (AIC) was inspected, with smaller values indicating a better fit and a more parsimonious explanation for the data (Hu & Bentler, 1999). However, it is noted that the AIC does carry a penalty for degrees of freedom (Akaike, 1987; Blunch, 2008). The current study carries a high number of degrees of freedom due to the complex models examined. In response, the RMSEA confidence interval was also examined. The model holding a confidence interval lower limit less than .05 and the least overlap with the other hypothesized models indicated the best fit (for fit statistics for each model, see Table 24).

Structural Models Predicting Relationships. To evaluate the relationships between the APSD measurement model (Table 19) and the MASC measurement model (parceled) developed earlier, several prediction models were constructed. Standardized path coefficients are presented to allow for comparison of effects across models (Kline, 2005). First, the Lifestyle Consequence Model was estimated, which used impulsive/deviant lifestyle (APSD Impulsivity) as a predictor for internal and external anxiety symptoms (See Figure 3). Estimation of this model provided a good fit on two indices and adequate on two others, $\chi^2(194, N=143) = 257.0, p < .01$, RLR ($\chi^2/df = 1.325$, CFI = .910, TLI = .893, RMSEA = .048). Inspection of the path coefficients (see Figure 3) indicates that Impulsivity was positively related to Physical Symptoms ($\beta = .441, p < .01$), negatively related to Harm Avoidance ($\beta = -.594, p < .01$), and not related to Separation/Panic ($\beta = .024, p = .828$) or Social Anxiety ($\beta = .200, p = .16$) and. The amount of

variance explained for each anxiety factor was also examined. The Lifestyle Consequence Model explained 4% of the variance for Social Anxiety, 20% of the variance for Physical Symptoms, 35% of the variance for Harm Avoidance, and <1% of the variance for Separation/Panic.

Subsequently, the study examined the Full Psychopathy Response Model, which added the Narcissism and Callous-Unemotional dimensions as predictors of anxiety (See Figure 4). The relationships between the APSD latent dimensions were separately examined with the anxiety latent factors (see Table 16). A significant relationship was found between the Narcissism scale and the Physical Symptoms and Social Anxiety scales. The Callousness scale significantly converged with Social Anxiety. Impulsivity was significantly associated with Harm Avoidance. No significance was found between the APSD scales and Separation/Panic. As established by the aforementioned results, a multivariate structural model involving the full APSD measurement model (Table 19) and parceled MASC latent factors was tested, with the aforementioned paths made from APSD to the MASC factors. Estimation of this model provided a good fit on two indices and mediocre on two others, $\chi^2(541, N= 143) = 671.134, p < .01$, RLR (χ^2/df) = 1.241, CFI = .885, TLI = .874, RMSEA = .041. Inspection of the path coefficients (see Figure 4) indicates that Callousness was associated with Social Anxiety ($\beta = .180, p < .05$) and Impulsivity was negatively related to Harm Avoidance ($\beta = -.435, p < .01$). Narcissism no longer associated significantly with Physical Symptoms or Social Anxiety. The Full Psychopathy Response Model explained 6.8% of the variance for Social Anxiety, 15.1% of the variance for Physical Symptoms, 18.9% of the variance for Harm Avoidance, and <1% of the variance for Separation/Panic.

To compare the analogous prediction power of the MASC factors, a similar method was used to build an Anxiety Prediction model. The relationships between each MASC latent factor

and the psychopathy dimensions were examined first (see Table 17). Significant relationships were found between the MASC latent factors and psychopathy dimensions except in the case of Separation/Panic, which only evidenced nonsignificant relationships. Physical symptoms were associated with Narcissism and Impulsivity, Harm Avoidance was related to all psychopathy dimensions, and Social Anxiety converged with Narcissism and Callousness. Using these univariate findings, a multivariate structural model involving the full MASC measurement model (Table 21) was constructed. In this model (See Figure 5), estimation again provided a good fit on two indices and mediocre on two others, $\chi^2(537, N=143) = 654, p < .01$, RLR (χ^2/df) = 1.218, CFI = .896, TLI = .885, RMSEA = .039. Inspection of the path coefficients indicates that Physical Symptoms were associated with Impulsivity ($\beta = .440, p < .01$). Harm Avoidance was negatively related to Callousness ($\beta = -.282, p = .013$) and Impulsivity ($\beta = -.578, p < .01$). Social Anxiety was positively connected with Callousness ($\beta = .284, p < .01$). The Anxiety Prediction Model explained 14.2% of the variance for Callousness, 53.2% of the variance for Impulsivity, and 21.9% of the variance for Narcissism.

Moderation analysis. Finally, the study hypothesized that the relations among psychopathy and anxiety would be moderated by age. This premise follows recent suggestions that the psychopathy and anxiety relationship decreases as the child grows old and experiences diminished distress in response to the consequence of their behavior and personality (see Kubak & Salekin, 2009). To examine whether this was true, the study tested models that included the moderation effect of age based on Hopwood's (2007) framework, which was in turn influenced by Baron and Kenny's (1986) influential article. In moderation, the effect of a predictor (X) on an outcome (Y) varies across levels of a moderator (M). The moderator variables became the interaction of age and the psychopathy factors. To obtain this value, standardized factor scores

for Narcissism, Callous-Unemotional, and Impulsivity were saved. Next, child age was standardized. The product of these factor scores and standardized age represents the interaction terms.

Using these terms, the Diminishing Anxiety Response Model was examined. Age, the three psychopathy factors, and the age-interaction factors were identified as predictors of anxiety. As Separation/Panic appeared to be completely unrelated to the psychopathy factors in the previous models, it was not included in the Diminishing Anxiety Response Model. Estimation of this model provided a mediocre fit that was not as strong as the Full Psychopathy Response or Anxiety Prediction Models ($\chi^2(532, N=143) = 685.0, p < .01$, RLR (χ^2/df) = 1.287, CFI = .865, TLI = .849, RMSEA = .045). Inspection of the path coefficients indicated that Impulsivity remained negatively related to Harm Avoidance ($\beta = -.370, p < .01$), while Callous-Unemotional remained positively associated with Social Anxiety ($\beta = .216, p < .05$). Child age was negatively linked with Harm Avoidance ($\beta = -.241, p < .05$). None of the interaction terms significantly associated with the anxiety factors, although the interaction between age and Callous-Unemotional approached significance in regard to Social Anxiety ($\beta = -.155, p = .077$). The Diminishing Anxiety Response Model explained 11% of the variance for Social Anxiety, 17% of the variance for Physical Symptoms, and 25% of the variance for Harm Avoidance.

Model Comparison. Based on the fit statistics and variance explained by each model (see Table 24), the Full Psychopathy Response Model appeared to provide the best fit of anxiety predictors for the current data. To examine this possibility more closely, the confidence interval around the RMSEA was compared. A confidence interval containing a lower limit closest to 0 (but less than .05) and the least overlap with the RMSEA confidence for the other hypothesized models indicates the model provides the best fit (Blunch, 2008). The confidence interval for the

Full Psychopathy included the lowest value, CI 90 interval = .028 to .050, when compared with the Lifestyle Consequences Model, CI 90 interval = .030 to .063, and the Diminishing Anxiety Response Model, CI interval .034 to .053. The Full Psychopathy Response Model provided a better fit than the Lifestyle Consequence Model and the Diminishing Anxiety Response Model, suggesting that it provides the best fit and explanation of the relationship between psychopathy and anxiety. The Anxiety Prediction Model also provided a strong fit, as it was modeled nearly identically to the Full Psychopathy Response Model, but instead using MASC anxiety factors as predictors for APSD psychopathy dimensions.

CHAPTER 4

DISCUSSION

Cleckley (1941, 1976) depicted the psychopath as free from other mental illness, such as anxiety, “neurotic disorders,” and “irrational” thinking. From the time of Cleckley’s initial depiction of the model psychopath, the relationship between anxiety and psychopathy has remained an impasse for researchers. Theories have focused on the absence of anxiety (Cleckley, 1941, 1976), a lack of fearful inhibition (Lykken, 1995), or anxiety as a consequence of lifestyle (Frick et al., 1999; Lilienfeld, 1994). The downward extension of psychopathy to children and adolescents further complicated the issue, as research continually exhibits unexpected links between youth psychopathy and anxiety (see Bauer & Kosson, 2000; Frick et al., 1999; Kubak & Salekin, 2009; Salekin et al., 2005). Fortunately, the presence of anxiety may hold vital inferences regarding both the development and treatment of psychopathy in childhood populations.

As mentioned, several prominent premises appeared in the literature to explain the relationship between psychopathy and anxiety. Foremost, Cleckley (1941, 1976) believed that psychopathic individuals were “as incapable of anxiety as of profound remorse” (p.257), creating the prevalent theory that psychopathy and anxiety were completely incompatible conditions. Subsequently, Lykken (1957) posited that, rather than with anxiety, the true inverse relationship existed between fearlessness and psychopathy. The fearlessness theory has found recent support with both adults (i.e., Patrick, 1994; Patrick et al., 1993) and adolescents (Kubak & Salekin, 2009). The most recent hypothesis suggests that while anxiety may be related to psychopathy, it is not due to personality or temperament, but it is instead context specific. Anxiety is a temporary reaction to the consequences (i.e., incarceration, legal difficulties, and social rejection) of

irresponsible or antisocial behavior, and not an innate trait or disorder. Consequently, researchers (Frick et al., 1999; Lilienfeld, 1994) suggest that any anxiety will be positively associated with the lifestyle/impulsivity component of psychopathy, but maintain an inverse link with the affective and interpersonal features. The current study also posited an anxiety response model, which broadened the lifestyle consequence model by hypothesizing that children exhibiting interpersonal and affective psychopathy features would experience anxiety in a manner distinctive from impulsive features.

This study sought to explore the complex relationship between child psychopathy and childhood conceptualizations of anxiety disorders while comparing several main theories created by the past research in this field. From a clinical perspective, it becomes necessary to progress from simple constructs of trait anxiety and instead lay emphasis on DSM-IV conceptualizations of child-specific anxiety symptoms. Specifically, the study hypothesized that symptoms of childhood anxiety disorders (i.e., somatic/tense symptoms, anxious coping, and social anxiety) would be associated with psychopathy. Structural equation modeling (SEM) was used to compare several models of psychopathy, based on the self-report APSD measure of psychopathy, and anxiety, derived from the self-report MASC. Confirmatory factor analyses were used to determine whether these measures were appropriate for a non-referred community sample of children. The study also examined whether child age could moderate the relationship between psychopathy and anxiety in the current population. As a final supplemental analysis, the connection between psychopathy, anxiety, and family stress events were also examined.

Psychopathy and Anxiety Relationship

Psychopathy Total Scores. The examination of the preliminary Pearson product-moment correlation coefficients provide findings that contrast with the relationships found in

adult psychopathy. Considering psychopathy total scores, psychopathy was found to be related to physical anxiety, social anxiety, and harm avoidance symptoms. Based on the fearlessness theory, the relationship between total psychopathy and fearful harm avoidance was in the predicted inverse direction. Specifically, children who reported high levels of apprehension and vigilant behaviors also reported low total psychopathy scores. In contrast to the inverse anxiety theory, the APSD total score evidenced moderate positive correlations with physical and social anxiety symptoms. Hence, children reporting high levels of APSD psychopathy may also report physical distress, worry over what other people think of them, and fears regarding embarrassment. Furthermore, separation anxiety and panic symptoms were completely unrelated to total psychopathy reports. These relationships were consistent within and across child and parent reports on the APSD and the MASC.

At first glance, the current data appears contradictory with Cleckley's hypothesis that psychopathic individuals are immune to the experience of anxiety. Rather, these findings imply that childhood psychopathy coexists with anxiety symptomatology in a fashion unanticipated by Cleckley (1976) and Hare (1991). However, children who report harm concerns and avoid fear-provoking situations also report low levels of overall psychopathy. This finding provides preliminary indirect support for the fearlessness theory.

Psychopathy Factor Scores. Pearson correlation coefficients present similar findings for the APSD factor scores. None of the APSD dimensions were related to the MASC total. Narcissism, callous-unemotionality, and impulsivity all evidenced small-to-moderate positive correlations with physical and social anxiety symptoms, no relationship with separation or panic symptoms, whereas narcissism and impulsivity exhibited inverse relationships to harm avoidance. These relationships diminished somewhat when partial correlations were used to

control for respective psychopathy factors. Despite the shared variance evident between the three factors, the APSD factors preserved relationships with anxiety symptoms in a manner counter to the inverse anxiety theory and the lifestyle consequence theory. Narcissism retained a significant relationship with physical and social anxiety symptoms, callous-unemotionality continued to link with social anxiety, and impulsivity was inversely related to harm avoidant behaviors.

Once again, these preliminary partial correlation findings defy several prominent theories. The presence of psychopathy features does not render children impervious to anxiety. The unshared variance accounted for by the Impulsivity scale is unrelated to physical symptoms, separation anxiety, panic, or social anxiety symptoms, suggesting that the lifestyle consequence theory may not be adequately describing the psychopathy-anxiety relationship in children. Of the existing theories explored, only fearlessness theory found support, although indirectly. Children who reported high scores of impulsive behaviors also reported low amounts of anxious coping or safety preoccupation. Finally, the hypothesized anxiety response theory appeared better supported by the data than the lifestyle consequence theory. Particularly interesting were the positive relationships existing between narcissism, callous-unemotionality, and social anxiety. Children reporting higher scores of affective and interpersonal psychopathy features also reported concern about social disapproval and fears of humiliation.

Additional measures. Interestingly, child and parent reports of separation anxiety and panic symptoms were completely unrelated to any aspect of psychopathy. The symptoms were present in the sample; they simply had a negligible relationship with psychopathy across every analysis. This finding is divergent from earlier data (Kubak & Salekin, 2009), but this may be a function of the current population, as these children were nonreferred and have not faced the level of separation from support systems as a court-referred or inpatient sample may have. The

earlier separation findings may have been heightened due to the participants' concern over their current predicament (being assessed in a juvenile evaluation center; Kubak & Salekin, 2009). Separation and panic symptoms did converge with a few variables in the study, specifically the age of the child and the parent-report mLES Negative Family Environment scale.

Considering the mLES scale, several notable patterns were observed. Specifically, the Negative Family Environment scale (i.e., marital difficulties affecting family, mental health problems affecting family, substance abuse affecting family, etc.) was moderately correlated with the parent-reported APSD total score and the Narcissism and Impulsivity scales, yet the child-reports were negligible. Children, however, evidenced small links between negative environment and their self-report on the Social Anxiety, Physical Symptoms, and Separation/Panic scales. This finding may suggest that parents who are distressed and struggling with significant life problems may have less patience and mental resources to cope with their children's behaviors. Hence, they may be more likely to rate their child as impulsive or self-centered when they have a higher amount of negative environmental factors impacting the family, whereas their children may be displaying increased distress, anxiety, and need more support from their parents. Future study might benefit from an inclusion of parent anxiety assessment to determine whether child anxiety, child psychopathy, or parent reports are influenced by the parental distress.

A similar pattern was evidenced with the Social Adversity scale (i.e., Free/reduced lunch status, financial problems, home eviction, etc.). Small-to-moderate correlations existed between all parent-reported APSD scales and the Social Adversity scale. Social Adversity was surprisingly unrelated to all child-report APSD or MASC scales. Several researchers have suggested that social factors, such as abuse or neglect, might cause or link with conduct problems

and psychopathy in children and adolescents (Dodge et al., 1995; Farrington & Loeber, 2000; Widom, 1992). DSM-IV anxiety disorders have also been linked to harmful environments (e.g., separation anxiety disorder or posttraumatic stress disorder) and may have particular relevance for abused or neglected children and adolescents. Negative environment did relate with child-reported anxiety in the current sample, but interestingly, child-reported psychopathy was unrelated with negative family environments and social adversity. On the other hand, the current sample came from families who were predominately in the middle to upper-middle class, so these findings may be distinct from more socially diverse backgrounds. While an investigation of socioeconomic status and family environment were not central components to the current study, they deserve continued in-depth investigation in future studies. At the least, it appears that parent-reporting of psychopathy may be influenced by family stress events. If that is the case, it further supports the current study emphasis on child self-reports of internal psychopathology.

Measure Consistency

The inspection of the internal consistency indicators revealed good reliability for the APSD child ($\alpha = .780$) and parent ($\alpha = .835$) measures, as well as the MASC child ($\alpha = .884$) and parent ($\alpha = .864$) measures. While the child and parent subscales for the MASC were all above .700, the conventionally recommended criterion value (Pallant, 2007), the alpha values for the child-reported APSD Narcissism subscale ($\alpha = .621$) and both Impulsivity scales (child, $\alpha = .509$; parent, $\alpha = .580$) were not. These findings are similar to other studies that have examined the internal consistency of the APSD. For example, Poythress and colleagues (2006) found poor internal inconsistency for the three-factor APSD (Narcissism, $\alpha = .61$; Callous-Unemotional, $\alpha = .45$; Impulsivity, $\alpha = .57$) using a population of community youths on probation for minor offenses (i.e., retail theft). Using a child psychiatric inpatient sample, Fite and partners (2009)

also found low consistency with the APSD Impulsivity scale (child, $\alpha = .67$; parent, $\alpha = .68$). Finally, in a study with adolescent offenders in a maximum-security unit, Vitacco, Rogers, & Neumann (2003) also found low to moderate internal consistency values for the APSD factors (Narcissism, $\alpha = .74$; Callous-Unemotional, $\alpha = .59$; Impulsivity, $\alpha = .53$). Taken together, concerns are raised as to whether the APSD is an adequate measure across youth populations, particularly in its ability to appraise impulsivity features. Furthermore, the Narcissism and Impulsivity scales were highly correlated ($r = .88$), indicating that these two subscales share a great deal of variance. Comparable findings were found by Vitacco et al., ($r = .85$; 2003) and Fite et al., ($r = .98$, 2009). Fite et al., (2009) indicated that combining the two factors provided a more parsimonious fit to their data. Finally, the APSD included two items (5 and 20) which performed disappointingly in the current study as well as numerous previous studies (see Poythress et al., 2006). The MASC, on the other hand, had overall strong internal consistency indices.

Satisfactory factor models were replicated for both the APSD and the MASC using confirmatory factor analysis. Despite the earlier concerns directed at the APSD, the three-factor model provided a very good fit after allowing two item error terms to correlate, an accepted practice seen in earlier studies (see Cooke & Michie, 2001). The poor results for the two-factor APSD model are consistent with previous studies (Vitacco et al., 2003). For the MASC, an adequate fit was obtained by loading all individual items onto their respective factors. Results closely matched with previous full-item confirmatory factor analyses (Baldwin & Dadds, 2007; Olason et al., 2004). However, a stronger fit was attained by creating random item parcels, as also found by earlier studies (Olason et al., 2004; Yao et al., 2006). Whereas both measures appeared perform well with the current sample, two caveats require mention. First, it appears that

some revision of the APSD factor scores may be necessary to enhance subscore reliability, as poor scale reliabilities were noted in the current and previous studies. Second, the MASC has thus far seen most of its reliability analyses limited to community populations. Furthermore, MASC confirmatory factor analyses have uniformly exhibited only adequate, not excellent, fit. The measure will need to be used in further studies, possibly with justice-involved or behavior-disordered youth, to determine whether it remains a satisfactory assessment of anxiety in those populations.

Structural Equation Models Predicting Relationships to Anxiety

Structural equation modeling corroborated that the APSD three-factor model held significant relationships with multiple MASC anxiety subscales. The impulsivity facet was no longer significantly related to social anxiety and physical symptoms after narcissism and callous-unemotional facets were included into the model. However, a stronger model fit was observed after the addition of the narcissism and callous-unemotional dimensions. Furthermore, each APSD factor evidenced unique relationships to anxiety once all APSD factors were included and allowed to associate with anxiety scales. In particular, callous-unemotional and impulsive features each play a divergent role in the underlying relationship of child psychopathy and anxiety, further questioning the correctness of Cleckley's inverse theory or the lifestyle consequence theory. Increased callous-unemotional scores predicted increased social anxiety scores, while increased impulsivity scores predicted lower harm avoidance scores. Although narcissism evidence small partial correlations with social and physical anxiety symptoms, these relationships were not significant in the multivariate structural model.

The age moderation model also upheld the above mentioned relationships between callousness, impulsivity, and anxiety. Unfortunately, results for the moderation model did not

indicate that age moderates the relationship between psychopathy and anxiety. Previous research (Kubak & Salekin, 2009) implied that the psychopathy-anxiety relationship may diminish over time as a child ages. In the current study, there was not a significant age moderation effect to support a diminishing anxiety response hypothesis. Kubak and Salekin (2009) noted that anxiety became less comorbid with youth, particularly late adolescents (age 16-18), who were having continual contact with law enforcement. They suggested that more contact with the law might lessen levels of anxiety as the youth becomes accustomed to negative consequences rather than the accumulation of anxiety. This developmental trend was used to explain the inconsequential relationship with anxiety that is observed in adults with psychopathic traits (Kubak & Salekin, 2009; Schmitt & Newman, 1999). However, the current sample of children was predominantly between the ages of 9 to 13. It may be that this population was too young to observe the posited diminishing anxiety response. On the other hand, the interaction between age and callous-unemotional features did approach significance in regard to a negative relationship with social anxiety ($\beta = -.155, p = .077$). In other words, as age and callous-unemotional features increased, there appeared to be a reduction in social anxiety. A sample with a broader age range may be necessary to further explore this relationship.

Although the current study could not sufficiently support this interaction, it may be that children who persist with callous-unemotional features into their adolescence begin to stop worrying about social rejection or fear social embarrassment. Furthermore, the current sample was unable to inquire about juvenile justice contacts or even school infractions. It is possible that a diminishing anxiety response may be due to continued exposure negative consequences, whether they are legal or social, and the current young sample was unable to detect the differences found in the Kubak and Salekin (2009) study.

The findings from the present study support the hypothesized anxiety response model, as children who reported callous-unemotional traits also consistently reported social anxiety symptoms, such as fear of embarrassment and worry over what others think. These concerns are at odds with the inverse relationship and lifestyle consequence theories of anxiety. At this point of development, personality traits are less likely to remain stable, so children presenting callous and unemotional characteristics may not do so consistently or be immune to the perceived judgments of others. When children act in a callous fashion, the resulting responses they receive may possibly result in anxiety, similarly to how older adolescents have been shown to experience anxiety as a result of antisocial behavior consequences (see Frick et al., 1999; Kubak & Salekin, 2009).

Narcissism features, however, did not maintain a significant relationship with anxiety within the structural models. Regrettably, it is unclear whether lost relationship is due to methodological reasons, as the APSD Narcissism factor was shown to evidence an exceptionally high correlation with the APSD Impulsivity scale. This finding is not limited to the current study (see Fite et al., 2009; Vitacco et al., 2003). Future studies may wish to combine the two factors due to their high overlap (see Fite et al., 2009), consider a revision of the APSD Narcissism and Impulsivity scales, or include additional measures of narcissism.

Despite the overlap with narcissism, impulsivity features were directly related to harm avoidance and safety preoccupation. However, this relationship did not provide support for the lifestyle consequence theory either, as the relationship was inversed. Impulsive children were less concerned about their personal safety or 'doing things right.' Instead, this relationship provides indirect support for the fearlessness theory. Fearfulness has been conceptualized as sensitivity to cues of impending danger (Tellegen, 1982), and such a sensitivity can be perceived

within the MASC Harm Avoidance scale. Hence, children reporting impulsive behaviors tended to have low levels of fear, whereas safety-minded children tended to not act hastily. Fearlessness theory appears to be the only ‘classic’ conceptualization that appears relevant to the current child population. Regardless, it remains clear that the presentation of child psychopathy is, on some levels, fundamentally distinct from adult psychopathy.

Child-report and parent-report

Consistent with child clinical research, the current study emphasized analyses using child-reported symptoms, as it has been suggested that children and adolescents may be better informants of their internalizing symptoms than other informants. Parents may have a hard time detecting internal symptoms in their children, as symptom manifestation is typically different in youth. Parents and teachers are known to be better reporters of disruptive behavior disorders. Fortunately, the child and parent reports were highly convergent with each other. Preliminary analyses also displayed similar patterns of relationships within the child and parent reports. Given that the current study was predominantly interested in internalized phenomena, and that the child and parent reports often paralleled, structural equation analyses were aimed at the child report measures. Parent ratings of child psychopathy were also related to financial and family environment problems, whereas child self-reports were not. On the other hand, parent-report and clinician assessed measures, such as the PCL-YV, have extensive validity to support their use. Future studies would do well to incorporate additional assessments of psychopathy and anxiety in children, as well as the relation of the constructs as assessed through different sources.

Strengths and Limitations

The current study holds several strengths including the use of advanced statistical techniques, the gathering of self and parent-report measures, and it is one of a small number of

studies to collect data on childhood psychopathy and anxiety. It is the first study to deliberately draw this data from a nonreferred community sample. The current study focused on a development period that still exists as a conceptual challenge for psychopathy research. By these merits, the study is able to address several empirical questions that have remained a quandary in the literature.

As always, it is important to place any interpretations in the context of several study limitations in the study. First, the sample of youth was heavily homogeneous, as the sample only included boys who were mostly Caucasian (88%), came from families in the middle to upper-middle socioeconomic status ranges (81.5%), and had highly educated parents. Race, SES, and gender difference testing was not possible with the current sample. Future investigations will need to seek more diverse samples. However, by having a homogeneous sample, the current study is better able to investigate psychopathology without having to be especially cautious of the superfluous consequences of gender or SES differences. Second, the current study examined boys between the ages of eight to fourteen. To more fully assess the moderating effect of age, it would have been beneficial to include adolescent symptom presentations.

Third, the study was conducted exclusively through mail survey. Whereas the sample demographics were comparable to the school system demographics, the useable data represented roughly 15% of the system population. The response rate is not atypical for mail surveys, but future study should incorporate alternative methods to increase the overall sampling rate. Education management systems required conservative sampling procedures, so future study should include additional avenues to collect community data. Also, as the current data came from a community sample, it will be necessary to compare these constructs and findings to court or clinic-referred samples. The current study was not capable of explaining how these constructs

might relate in children who have previously identified emotional or behavior problems. Nevertheless, the collection of data from a nonreferred population of young boys and their guardians remains a strong point of the current study, as it can concentrate on an area lacking in the literature.

A final prospective limitation of the current study was the reliance of self-report and parent-report assessments. Although the self-report of internal symptoms without the influence of an interviewer can be viewed as an asset, future research may wish to include additional disorder assessment methods, such as clinician assessment. The presence of a clinician or trained assistant would be useful to answer participant questions or monitor the autonomy of child self-reports. Furthermore, the chosen psychopathy measurement is widely used in the child psychopathy literature, but has evinced subscale reliability concerns across the current and previous studies.

CHAPTER 5

CONCLUSION

The results of the current study are both contradictory and concurrent with the adult psychopathy literature. Most prominently, children experience psychopathy features and anxiety in a manner that runs counter to Cleckley's theory. However, support was found for Lykken's theory of fearlessness, as children high in impulsive behaviors appear to have low levels of fearfulness. Finally, the lifestyle consequence theory does not adequately capture the relationship between psychopathy and anxiety. Impulsive behaviors were related to lowered levels of anxiety regarding safety rather than increased general distress. The full psychopathy anxiety response hypothesis suggested by the current study provided a better fit with the current community sample, as higher-reported callous-unemotional features were connected to increased social anxiety concerns. It may be that the current sample is dissimilar to previous studies examining court or clinic-referred youth, in that the children have not been specifically identified as having emotional or disruptive behavior problems. On the other hand, the study may be identifying a developmental trend where the consequences of affective and interpersonal psychopathy features create distress in children similarly to how older adolescents experience distress in regard to their impulsive or antisocial behaviors (Kubak & Salekin, 2009).

From a clinical perspective, the presence of anxiety at this developmental stage may be a positive sign for treatment. If children are experiencing anxiety parallel to affective or interpersonal psychopathy styles, particularly social anxiety regarding how others view them, treatment may be more effective in treating psychopathy characteristics that are notorious for their stability in adulthood. The screening procedure used by current study, if replicated in future studies, may assist mental health professionals in identifying and treating childhood psychopathy

features while they are still mutable. While some empirical attention has begun to be directed toward childhood psychopathy, its development, and co-morbid psychopathology, a great deal of work is still required. Investigating psychopathy from a developmental perspective is invaluable, as it may provide the opening to treat child psychopathy before it progresses to the adult presentation, a psychopathology that is well-known for antisocial behavior, increased hostile institutional behavior, and higher rates of overall recidivism.

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APPENDIXES

Table 1*Published investigations of anxiety and adolescent psychology.*

Studies	N	Male (%)	Age		Psychopathy	Anxiety	Findings
			Mean	Range	Instruments		
Brandt et al., 1997	129	100%	NA	13-19	PCL-R	CBCL	$r = .12$
Frick et al., 1999	143	100%	8.65	6 - 13	APSD	CBCL DISC-2.3 DISC-2.3 OAD	$r = .35$ (I/CP and CBCL) $r = .19$ (I/CP and ANX) $r = .17$ (I/CP and OAD) $r = -.24$ (CU and CBCL) $r = -.31$ (CU and ANX) $r = -.32$ (CU and OAD)
Kosson et al., 2002	115	100%	14.5	12 - 16	PCL:YV	WAI	$r = .25$
Kubak & Salekin (2009)	93	79.8%	14.86	9 - 18	APSD; PCL:YV	APS	<u>PCL:YV</u> $r = .20, .16, .15$ (GAD) $r = .21, .14, .21$ (SOC) $r = .21, .12, .21$ (SEP) <u>APSD</u> $r = .30, .01, .40$ (GAD) $r = .38, .12, .44$ (SOC) $r = .34, .08, .43$ (SEP) (Total, F1, F2)
Lynam, 1997	430	100%	NA	12 - 13	CPS	CBCL	$r = -.10$ (self report) $r = -.11$ (teacher report)
O'Neill et al., 2003	64	100%	NA	15 - 18	PCL:YV	PDS	$r = -.09$
Salekin et al., 2005	114	70.2%	15.16	11-18	APSD, PCL:YV, CPS	IASR-B5 (Neuroticism)	<u>Male</u> $r = .41$ (APSD) $r = .01$ (PCL:YV) $r = .33$ (CPS) <u>Female</u> $r = .23$ (APSD) $r = .20$ (PCL:YV) $r = .04$ (CPS) (Total, F1, F2, respectively)
Skeem & Cauffman, 2003	160	100%	15.9	14 - 17	PCL:YV	RCMAS	$r = -0.04, -0.05, 0.01$
Vitale et al., 2005	304	52.6%	16	16	APSD	WAI	<u>Male</u> $r = .46, p < .05$ <u>Female</u> $r = .53, p < .05$

Note: ANX Anxiety Composite; APS Adolescent Psychopathology Scale; APSD Antisocial Process Screening Device; CBCL Childhood Behavior Checklist; CU Callous-Unemotional Factor; CPS Child Psychopathy Scale; GAD Generalized Anxiety Disorder; IASR-B5 Interpersonal Adjective Scales Revised—Big 5 Version (Neuroticism); I/CP Impulsivity/Conduct Problems Factor; OAD Overanxious Disorder PCL:YV Psychopathy Checklist: Youth Version; PDS Posttraumatic Stress Diagnostic Scale; RCMAS Revised Children's Manifest Anxiety Scale; SEP Separation Anxiety Disorder; SOC Social Phobia; WAI Welsh Anxiety Inventory

Table 2
APSD Self-Report Form

APSD Self-Report Form				
Please read each statement and describe how well it describes you in general. Circle the appropriate number (0- 2) for each statement. Do not leave any statement unrated.				
#	Scale Items	"In general"		
1	I blame others for my mistakes.	0	1	2
2	I engage in illegal activities.	0	1	2
3 <i>r</i>	I care about how well I do at school/work.	0	1	2
4	I act without thinking of the consequences.	0	1	2
5	My emotions are shallow and fake.	0	1	2
6	I lie easily and skillfully.	0	1	2
7 <i>r</i>	I am good at keeping promises.	0	1	2
8	I brag a lot about my abilities, accomplishments, or possessions.	0	1	2
9	I get bored easily.	0	1	2
10	I use or "con" other people to get what I want.	0	1	2
11	I tease or make fun of other people.	0	1	2
12	I feel bad or guilty when I do something wrong.	0	1	2
13	I do risky or dangerous things.	0	1	2
14	I act charming and nice to get things I want.	0	1	2
15	I get angry when corrected or punished.	0	1	2
16	I think I am better or more important than other people.	0	1	2
17	I do not plan ahead or I leave things until the "last minute."	0	1	2
18 <i>r</i>	I am concerned about the feelings of others.	0	1	2
19	I hide my feelings or emotions from others.	0	1	2
20 <i>r</i>	I keep the same friends.	0	1	2

0	1	2
Not at all true	Sometimes True	Definitely True

Note: r = reverse scored items

Table 3
APSD Parent-Report Form

APSD Parent-Form				
Please read each statement and describe how well it describes your child in general. Circle the appropriate number (0- 2) for each statement. Do not leave any statement unrated.				
#	Scale Items	“In general”		
1	Blames others for his/her mistakes.	0	1	2
2	Engages in illegal activities.	0	1	2
3r	Cares about how well s/he does at school/work.	0	1	2
4	Acts without thinking of the consequences.	0	1	2
5	His/her emotions seem shallow and not genuine.	0	1	2
6	Lies easily and skillfully.	0	1	2
7r	Is good at keeping promises.	0	1	2
8	Brags excessively about his/her abilities, accomplishments, or possessions.	0	1	2
9	Gets bored easily.	0	1	2
10	Uses or “cons” other people to get what s/he wants.	0	1	2
11	Teases or make fun of other people.	0	1	2
12	Feels bad or guilty when s/he does something wrong.	0	1	2
13	Engages in risky or dangerous activities.	0	1	2
14	Can be charming at times, but in ways that seem insincere or superficial.	0	1	2
15	Becomes angry when corrected or punished.	0	1	2
16	Seems to think that s/he is better or more important than other people.	0	1	2
17	Does not plan ahead or leaves things until the “last minute.”	0	1	2
18r	Is concerned about the feelings of others.	0	1	2
19	Does not show feelings or emotions.	0	1	2
20r	Keeps the same friends.	0	1	2

0	1	2
Not at all true	Sometimes True	Definitely True

Note: r = reverse scored items

Table 4
Three-Factor APSD Model

Three-Factor APSD Model	
#	Factor 1: Narcissism
5	My emotions are shallow and fake.
8	I brag a lot about my abilities, accomplishments, or possessions.
10	I use or “con” other people to get what I want.
11	I tease or make fun of other people.
14	I act charming and nice to get things I want.
15	I get angry when corrected or punished.
16	I think I am better or more important than other people.
Factor 2: Callous-Unemotional	
3	I care about how well I do at school/work.
7	I am good at keeping promises.
12	I feel bad or guilty when I do something wrong.
18	I am concerned about the feelings of others.
19	I hide my feelings or emotions from others.
20	I keep the same friends.
Factor 3: Impulsivity	
1	I blame others for my mistakes.
4	I act without thinking of the consequences.
9	I get bored easily.
13	I do risky or dangerous things.
17	I do not plan ahead or I leave things until the “last minute.”
Unused	
2	I engage in illegal activities.
6	I lie easily and skillfully.

Table 5
Family Live Events – Parent Form

Family Live Events – Parent Form		
<i>In the last 12 months, has any of the following happened to your family or your child?</i>		
Did parents separate or divorce?	Yes	No
Does a parent have to work more than they used to?	Yes	No
Was a grandparent hospitalized?	Yes	No
Was a child hospitalized?	Yes	No
Did a child move away from home?	Yes	No
Did a parent go to prison or jail?	Yes	No
Did a parent move far away from home	Yes	No
Does your child receive free/reduced lunch status?	Yes	No
Has a parent been unemployed?	Yes	No
Has money been a problem for the family?	Yes	No
Has a parent lost their job?	Yes	No
Has the family been evicted from home?	Yes	No
Has the family had funds cut off from an agency?	Yes	No
Have marital difficulties affected your family?	Yes	No
Has serious illness affected your family?	Yes	No
Has trouble with the law affected your family?	Yes	No
Have alcohol problems affected your family?	Yes	No
Have drug problems affected your family?	Yes	No
Have any mental/emotional illnesses affected your family?	Yes	No
Do you or any other parent figures have mental health problems?	Yes	No
Have there been more parental arguments?	Yes	No
Is your child's sibling involved in drugs and/or alcohol?	Yes	No
Does your child struggle with reading?	Yes	No
Does your child struggle with math?	Yes	No
Has your child failed or almost failed any classes?	Yes	No
Does your child often have problems getting along with other children their age?	Yes	No
Has a parent died in the last year?	Yes	No
Has a grandparent died in the last year?	Yes	No
Has a sibling of your child died in the last year?	Yes	No
Has an adult who your child was close to died in the last year?	Yes	No
Has your child had a pet die in the last year?	Yes	No

Table 6
Modified Life Event Scales

Modified Life Events Scales		
Loss-Separation		
1. Parents separated or divorced	Yes	No
2. Change in parent job away more	Yes	No
3. Grandparent hospitalized	Yes	No
4. Sibling ill hospitalized	Yes	No
5. Sibling moved away from home	Yes	No
6. Parent jail sentence > 1 year	Yes	No
7. Parent moved far away from home	Yes	No
Social Adversity		
8. Free/reduced lunch status	Yes	No
9. Parental unemployment	Yes	No
10. Financial problems affected the family	Yes	No
11. Parent lost job	Yes	No
12. Family evicted from home	Yes	No
13. Family had funds cut off from agency	Yes	No
Negative Family Environment		
14. Marital difficulties affected the family	Yes	No
15. Serious illness affected the family	Yes	No
16. Trouble with the law affected the family	Yes	No
17. Alcohol problems affected the family	Yes	No
18. Drug problems affected the family	Yes	No
19. Mental/emotional illness affected the family	Yes	No
20. Parental psychopathology	Yes	No
21. Increase in parental arguments	Yes	No
22. Sibling involved in drugs and alcohol	Yes	No
Academic Difficulties		
23. Low reading achievement scores	Yes	No
24. Low math achievement scores	Yes	No
25. Near failure/Failure status	Yes	No
Peer Rejection		
26. Peer Rejection	Yes	No
Loss-Death		
27. Death of a parent	Yes	No
28. Grandparent died	Yes	No
29. Sibling died	Yes	No
30. Close adult friend died	Yes	No
31. Child pet died	Yes	No

Table 7
Socioeconomic Demographics Questionnaire

Socioeconomic Demographics Questionnaire

How many people live in your home? _____

Guardian Questions

What is your age? _____ years

Marital Status (Single, Married, Divorced, Living with Partner) _____

Your relationship to the child?

- | | | |
|---|--|---------------------|
| <input type="checkbox"/> Biological Mother | <input type="checkbox"/> Biological Father | |
| <input type="checkbox"/> Adoptive Mother | <input type="checkbox"/> Adoptive Father | For how long: _____ |
| <input type="checkbox"/> Step-Mother | <input type="checkbox"/> Step-Father | For how long: _____ |
| <input type="checkbox"/> Foster Mother | <input type="checkbox"/> Foster Father | For how long: _____ |
| <input type="checkbox"/> Grandmother | <input type="checkbox"/> Grandfather | |
| <input type="checkbox"/> Other (specify): _____ | | |

What is your ethnicity?

- | | |
|--|---|
| <input type="checkbox"/> European-American (White) | <input type="checkbox"/> African/Caribbean-American (Black) |
| <input type="checkbox"/> Native-American | <input type="checkbox"/> Latin-American (i.e. Hispanic) |
| <input type="checkbox"/> Asian-American (i.e. Chinese, Japanese, Korean, Vietnamese, etc.) | |
| <input type="checkbox"/> South Asian-American (i.e. East Indian, Pakistani, etc.) | |
| <input type="checkbox"/> Other (specify): _____ | |

Education (Please indicate your highest level)

- High School (Highest Grade Complete)
- Some College/University
- College/University Degree
- Some Graduate Education (e.g. one year of a Master's program)
- Graduate Education (e.g. M.A., M.D., Ph.D.)
- Other (specify): _____

Table 7 cont.
Socioeconomic Demographics Questionnaire

Socioeconomic Demographics Questionnaire cont.

Employment:

Are you employed? Yes No

What is your current occupation? _____

What kind of work do you do? _____

Spouse or Partner Questions (If applicable)

Spouse or partner's employment:

If married or living with a partner, are they employed? Yes No

What is their current occupation? _____

What kind of work do they do? _____

Spouse or partner's Education (Please indicate their highest level of education)

- High School (Highest Grade Complete)
- Some College/University
- College/University Degree
- Some Graduate Education (e.g. one year of a MA program)
- Graduate Education (e.g. M.A., M.D., Ph.D.)
- Other (specify): _____

Questions about your child

What is your child's age? _____ Years _____ Months

Current grade in school? _____

Grades (What kind of grades does your child get the most?)

- A's
- B's
- C's
- D's
- F's

Has your child ever received mental health treatment? **Yes No**

Table 8
Hollingshead Index of Social Position

Hollingshead Index of Social Position (Hollingshead, 1975)	
Occupation Scale	Score
Higher executives of large concerns, proprietors, and major professionals	1
Business managers, proprietors of medium-sized businesses, and lesser professionals	2
Administrative personnel, owners of small businesses, and minor professionals	3
Clerical and sales workers, craftsmen, technicians, and owners of little businesses	4
Skilled manual employees	5
Machine operators and semiskilled employees	6
Unskilled employees, Laborers, Menial Service	7
Education Scale	Score
Professional (MA, MS, ME, MD, PhD, LLD, and the like)	1
Four-year college graduate (BA, BS, BM)	2
One to three years college (also business schools)	3
High school graduate	4
Ten to 11 years of school (part high school)	5
Seven to nine years of school	6
Less than seven years of school	7
ISP score = (Occupation score X 7) + (Education score X 4)	
Classification	Score
Upper	11-17
Upper-middle	18-31
Middle	32-47
Lower-middle	48-63
Lower	64-77

DATA TABLES

Table 9
Scale means and standard deviations

Variable	Boy			Guardian		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
Age	11.29	1.40	8-14	42.33	5.71	26-61
MASC Total	40.24	12.37	14-77	39.53	12.927	13-93
MASC Physical Symptoms	6.73	4.946	0-25	4.64	4.260	0-28
MASC Harm Avoidance	17.62	4.138	4-27	17.44	4.268	2-26
MASC Social Anxiety	9.29	4.958	1-24	10.74	5.452	0-26
MASC Separation/Panic	6.61	4.159	0-19	6.71	4.736	0-22
APSD Total	12.68	5.649	0-29	10.88	6.143	0-29
APSD Narcissism	3.11	2.160	0-10	2.89	2.532	0-13
APSD Callous/Unemotional	3.84	2.677	0-12	2.82	2.621	0-12
APSD Impulsivity	4.25	1.802	0-9	4.16	1.974	0-9
FLE Total				2.55	3.008	0-29
FLE Loss by Separation				.83	.918	0-4
FLE Social Adversity				.47	1.010	0-6
FLE Negative Family Environment				.71	1.315	0-6
FLE Academic Difficulties				.33	.969	0-8
FLE Peer Rejection				.06	.252	0-1
FLE Loss by Death				.40	.674	0-3

Note: *N* = 147 for all constructs; *MASC* Multivariate Anxiety Scale for Children; *APSD* Antisocial Process Screening Device; *FLE* Family Life Events

Table 10
Family Demographic Information

Variable	Guardian		Guardian Partner	
	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>
Family Marital Status				
Single	6	4.2		
Married	127	86.7		
Divorced	11	7.0		
Living with partner	1	.7		
Widowed	2	1.4		
Ethnicity				
Caucasian	130	88.1		
African-American	5	3.5		
Latin-American	1	.7		
Asian-American	8	5.6		
South Asian-American	2	1.4		
Other	1	.7		
Education				
Some high school	3	2.1	0	0
High School	1	.7	5	2.8
Some college/university	12	8.4	18	12.6
College/University Degree	64	43.4	51	35.0
Some graduate education	17	11.9	6	4.2
Graduate Degree	49	32.9	57	39.9
Other	1	.7	0	0
No Partner			10	5.6
Employed				
No	44	30.8	14	83.9
Yes	103	69.2	123	6.3
No Partner			10	7.7

Note: N = 147 for all constructs

Table 11
Child Information

Variable	Child	
	<i>Frequency</i>	<i>%</i>
Age		
8	1	.7
9	19	12.6
10	24	16.8
11	33	22.4
12	36	25.2
13	30	19.6
14	4	2.8
Year in School		
3rd Grade	11	7.7
4th Grade	20	13.3
5th Grade	30	21.0
6th Grade	34	23.1
7th Grade	52	35.0
Average Grades Earned		
A's	97	67.1
B's	40	26.6
C's	8	4.9
D's	2	1.4
Mental Health Treatment		
No	128	87.4
Yes	19	12.6

Note: N = 147 for all constructs

Table 12

Pearson correlation coefficients for child self-reports of anxiety and psychopathy

Variable	1	2	3	4	5	6	7	8	9
Child Report									
1. MASC Tot	1								
2. MASC PS	.694**	1							
3. MASC HA	.499**	.027	1						
4. MASC SA	.759**	.433**	.127	1					
5. MASC SP	.729**	.327*	.326**	.423**	1				
6. APSD Tot	.135	.318**	-.282**	.308**	-.067	1			
7. APSD N	.129	.282**	-.170*	.217**	-.050	.677**	1		
8. APSD CU	.113	.168*	-.151	.272**	-.040	.757**	.153	1	
9. APSD I	.033	.281**	-.370**	.180*	-.087	.772**	.523**	.375**	1

Note: $N = 147$ for all constructs, APSD Antisocial Process Screening Device; MASC Multivariate Anxiety Scale for Children; PS Physical Symptoms; HA Harm Avoidance; SA Social Anxiety; SP Separation/Panic; N Narcissism; CU Callous-Unemotional; I Impulsivity; * $p \leq .05$; ** $p \leq .01$

Table 13

Pearson correlation coefficients for guardian-reported anxiety, psychopathy, and family stress

Variable	1	2	3	4	5	6	7	8	9	10
Guardian Report										
1. MASC Tot	1.000									
2. MASC PS	.662**	1.000								
3. MASC HA	.551**	.031	1.000							
4. MASC SA	.743**	.424**	.151	1.000						
5. MASC SP	.776**	.386**	.396**	.354**	1.000					
6. APSD Tot	.177*	.367**	-.343**	.368**	.036	1.000				
7. APSD N	.157	.346**	-.275*	.260**	.065	.779**	1.000			
8. APSD CU	.132	.217**	-.219**	.279**	.040	.773**	.321**	1.000		
9. APSD I	.148	.357**	-.354**	.374**	-.030	.727**	.605**	.286**	1.000	
10. mFLE Total	.126	.236*	-.139	.193*	.034	.237**	.297**	.051	.276**	1.000

Note: $N = 147$ for all constructs; MASC Multivariate Anxiety Scale for Children; APSD Antisocial Process Screening Device; mFLE Family Life Events; * $p \leq .05$; ** $p \leq .01$

Table 14*Pearson correlation coefficients between child reports and guardian ratings*

Child Report	MASC Tot	MASC PS	MASC HA	MASC SA	MASC SP	APSD Tot	APSD N	APSD CU	APSD I
Guardian Report									
MASC Tot	.596**	.348**	.242**	.457**	.577**	.018	-.066	.084	-.022
MASC PS	.512**	.537**	.093	.370**	.355**	.201*	.089	.181*	.193*
MASC HA	.227**	-.031	.390**	.069	.242**	-.373**	-.308**	-.219**	-.406**
MASC SA	.370**	.228**	-.009	.468**	.284**	.236**	.084	.249**	.206*
MASC SP	.531**	.230**	.234**	.310**	.707**	-.066	-.079	-.024	-.104
APSD Tot	.128	.180*	-.171*	.221**	.075	.592**	.324**	.500**	.497**
APSD N	.003	.097	-.163	.000	.058	.375**	.336**	.236**	.341**
APSD CU	.124	.075	-.079	.284**	.022	.485**	.081	.586**	.293**
APSD I	.170*	.290**	-.175*	.213*	.083	.466**	.417**	.202*	.571**
mFLE Total	.092	.092	-.081	.121	.100	.010	.073	-.074	.091

Note: $N = 147$ for all constructs; *MASC* Multivariate Anxiety Scale for Children; *APSD* Antisocial Process Screening Device; *mFLE* Family Life Events; * $p \leq .05$; ** $p \leq .01$

Table 15

Pearson correlation coefficients of the Modified Family Life Events Questionnaire, anxiety and psychopathy

	MASC Total		Physical Symptoms		Harm Avoidance		Social Anxiety		Separation /Panic	
	Child	Parent	Child	Parent	Child	Parent	Child	Parent	Child	Parent
mFLE Total Score	.092	.126	.092	.236**	-.081	-.139	.121	.193*	.100	.034
Loss by Separation	-.039	-.014	-.032	.139	-.106	-.207*	.037	.060	-.017	-.047
Social Adversity	.033	.062	.078	.147	-.084	-.108	.086	.178*	-.013	-.070
Negative Family Environment	.250**	.234**	.214*	.365**	-.012	-.073	.212**	.141	.250**	.211*
Academic Difficulties	.059	.035	.005	.051	-.044	-.129	.163	.185*	.018	-.049
Peer Rejection	.152	.160	.129	.259**	-.074	-.237**	.212*	.288**	.122	.083
Loss by Death	-.137	.027	-.198*	-.012	.021	.095	-.163	-.065	-.002	.074

	APSD Total		Narcissism		Callous-Unemotion		Impulsive	
	Child	Parent	Child	Parent	Child	Parent	Child	Parent
mFLE Total Score	.010	.237**	.073	.297**	-.074	.051	.091	.276**
Loss by Separation	.023	.192*	-.001	.285**	.058	.052	.004	.139
Social Adversity	.133	.350**	.011	.219**	.163	.329**	.126	.215**
Negative Family Environment	.107	.288**	.143	.327**	.015	.091	.119	.287**
Academic Difficulties	.113	.252**	.072	.175*	.134	.194*	.101	.225**
Peer Rejection	.184*	.367**	.227**	.331**	.113	.305**	.156	.272**
Loss by Death	-.147	-.068	-.073	-.046	-.180**	-.082	-.081	-.040

Note: $N = 147$ for all constructs; MASC Multivariate Anxiety Scale for Children; APSD Antisocial Process Screening Device; mFLE Family Life Events; * $p \leq .05$; ** $p \leq .01$

Table 16*Two-tailed zero-order and partial correlations for child-report APSD*

Measure	MASC Total		Physical Symptoms		Harm Avoidance		Social Anxiety		Separation/Panic	
	<i>Zero</i>	<i>Partial</i>	<i>Zero</i>	<i>Partial</i>	<i>Zero</i>	<i>Partial</i>	<i>Zero</i>	<i>Partial</i>	<i>Zero</i>	<i>Partial</i>
Total	.135	-	.318**	-	-.282**	-	.308**	-	-.067	-
Narc	.129	.138	.282**	.168*	-.170*	.033	.217**	.162*	-.050	.014
C/U	.113	.117	.168*	.079	-.151*	-.010	.272**	.235**	-.040	-.008
Impulse	.033	-.081	.281**	.124	-.370**	-.312**	.180*	-.010	-.087	-.064

Note: $N = 147$ for all constructs; *MASC* Multivariate Anxiety Scale for Children; *APSD* Antisocial Process Screening Device; *Narc* Narcissism scale; *C/U* Callous/Unemotional scale; *Impulse* Impulsivity scale; * $p \leq .05$; ** $p \leq .01$

Table 17*Two-tailed zero-order and partial correlations for child-report MASC scores*

Measure	APSD Total		Narcissism		Callousness		Impulsivity	
	<i>Zero</i>	<i>Partial</i>	<i>Zero</i>	<i>Partial</i>	<i>Zero</i>	<i>Partial</i>	<i>Zero</i>	<i>Partial</i>
MASC Tot	.135	-	.129		.113	-	.033	-
MASC PS	.318**	.235**	.282**	.238**	.168*	.066	.281**	.242**
MASC HA	-.282**	-.278**	-.170*	-.147	-.151*	-.144	-.370**	-.359**
MASC SA	.308**	.282**	.217**	.163*	.272**	.272**	.180*	.147
MASC SP	-.067	-.153*	-.050	-.106	-.040	-.122	-.087	-.080

Note: $N = 147$ for all constructs; *MASC* Multivariate Anxiety Scale for Children; *APSD* Antisocial Process Screening Device; *PS* Physical Symptoms; *HA* Harm Avoidance; *SA* Social Anxiety; *SP* Separation/Panic; * $p \leq .05$; ** $p \leq .01$

Table 18*Reliability analyses for the APSD and MASC*

Measure	Child Report <i>Alpha (α)</i>	Parent Report <i>Alpha (α)</i>
APSD Total	.780	.835
Narcissism	.621	.764
Callous-Unemotional	.742	.787
Impulsivity	.509	.580
MASC Total	.844	.864
Physical Symptoms	.788	.789
Harm Avoidance	.707	.732
Social Anxiety	.776	.843
Separation/Panic	.705	.749

Table 19*Three-factor confirmatory factor analysis of the Antisocial Process Screening Device (APSD)*

#	APSD Scale/Item	Unstandardized Estimate	Standard Error	Critical Ratio	Standardized Loading
Callous-Unemotional					
3	Cares about school/work.	1.000 ^a			.775
7	Good at keeping promises	.859	.109	7.857	.716
12	Feels bad or guilty	.837	.108	7.741	.705
18	Concerned about the feelings of others.	.778	.102	7.618	.693
19	Hide feelings or emotions from others.	.390	.103	3.791	.347
20	Keeps the same friends.	.207	.092	2.245	.198
Narcissism					
5	Emotions are shallow and fake.	1.000 ^a			.153
8	Braggs about abilities	3.204	2.061	1.554	.422
10	Cons others to get what they want.	4.176	2.585	1.615	.666
11	Teases or makes fun of others	3.363	2.115	1.590	.523
14	Acts charming and nice to get things	3.733	2.389	1.562	.440
15	Gets angry when corrected or punished	3.497	2.246	1.557	.427
16	Believes more important than others	2.963	1.879	1.576	.477
Impulsivity					
1	Blames others for mistakes.	1.000 ^a			.405
4	Acts without thinking	1.309	.358	3.657	.504
9	Gets bored easily	1.454	.409	3.557	.476
13	Does risky things	1.363	.417	3.267	.406
17	Does not plan ahead	.869	.332	2.613	.289

a. Fixed value to identify the model.

Table 20
Two-Factor Confirmatory Factor Analysis of the Antisocial Process Screening Device (APSD)

#	APSD Scale/Item	Unstandardized Estimate	Standard Error	Critical Ratio	Standardized Loading
Callous-Unemotional					
3	Cares about school/work.	1.000 ^a			.747
5	Emotions are shallow and fake.	.014	.087	.158	.015
12	Feels bad or guilty	.895	.130	6.883	.726
14	Acts charming and nice to get things	-.039	.112	-.347	-.033
18	Concerned about the feelings of others.	.822	.121	6.798	.705
19	Hide feelings or emotions from others.	.189	.103	1.837	.174
Impulsivity/Conduct Problems					
1	Blames others for mistakes.	1.000 ^a			.369
2	Engages in illegal activities	1.497	.612	2.446	.307
4	Acts without thinking	1.488	.466	3.195	.522
8	Braggs about abilities	1.145	.416	2.751	.374
9	Gets bored easily	1.289	.410	3.140	.498
11	Teases or makes fun of others	1.505	.500	3.007	.448
13	Does risky things	1.364	.499	2.735	.370
15	Gets angry when corrected or punished	1.290	.458	2.816	.391
16	Believes more important than others	1.067	.363	2.940	.427
20	Keeps the same friends.	.794	.413	1.924	.219
Not used in two-factor model					
6	Lies easily				
7	Good at keeping promises				
10	Cons others to get what they want.				
17	Does not plan ahead				

a. Fixed value to identify the model.

Table 21
Four-factor confirmatory factor analysis of the Multivariate Anxiety Scale for Children (MASC)

#	MASC Scale/Item	Unstandardized Estimate	Standard Error	Critical Ratio	Standardized Loading
Physical Symptoms					
1	Tense or uptight	1.000 ^a			.277
6	Trouble getting breath	1.388	.508	2.732	.463
8	Shaky or jittery	1.536	.540	2.843	.539
12	Dizzy or faint feeling	1.908	.661	2.887	.578
15	Jumpy	2.748	.946	2.905	.596
18	Pains in chest	1.400	.545	2.570	.386
20	Feel strange or unreal	1.172	.453	2.584	.391
24	Heart races or skips	2.032	.693	2.934	.627
27	Feel restless	2.494	.864	2.887	.578
31	Sick to stomach	1.637	.619	2.646	.418
35	Hands shake	1.517	.528	2.875	.567
38	Hands feel sweaty or cold	2.285	.801	2.853	.547
Harm Avoidance					
2	Ask permission	1.1148	.379	3.025	.450
5	Look for danger	2.250	.677	3.322	.587
11	Obey parents and teachers	.797	.334	2.388	.291
13	Check things out	1.730	.555	3.115	.484
21	Do things that people like	1.000 ^a			.347
25	Avoid upsetting things	1.566	.547	2.865	.399
28	Try to do everything right	.982	.392	2.502	.311
32	Tell people right away when scared	1.450	.497	2.919	.415
36	Check for safety	2.566	.740	3.467	.717
Social Anxiety					
3	Worry about people laughing	1.000 ^a			.707
10	Afraid of kids making fun	1.072	.136	7.864	.762
14	Worry about being called on	.443	.115	3.870	.357
16	Afraid people think stupid	.926	.127	7.317	.699
22	Worry what others think	.925	.128	7.232	.689
29	Worry about being embarrassed	.797	.135	5.884	.551
33	Nervous about public performance	.364	.142	2.564	.236
37	Trouble asking others to play	.404	.130	3.099	.285
39	Shy	.425	.119	3.582	.330
Separation/Panic					
4	Scared when parents are away	1.000 ^a			.638
7	Find going to camp scary	.933	.160	5.834	.653
9	Stay near parents	.908	.174	5.216	.558
17	Night light	.739	.192	3.853	.389
19	Avoid going places without family	.905	.157	5.765	.641
23	Avoid scary shows	.855	.212	4.036	.410
26	Sleep next to family members	.408	.149	2.733	.269
30	Scared riding in car or bus	-.059	.071	-8.29	-.080
34	Scared of bad weather, bugs, animals, heights	.583	.180	3.245	.323

a. Fixed value to identify the model.

Table 22
Parcels for MASC CFA confirmatory factor analysis

MASC Total	Item Cluster	Alpha (α)
Physical Symptoms		.787
Parcel 1	1, 15, 27	
Parcel 2	6, 12	
Parcel 3	35, 38	
Parcel 4	20, 24, 31	
Parcel 5	8, 18	
Harm Avoidance		.622
Parcel 1	2, 11,	
Parcel 2	5, 13, 36	
Parcel 3	28, 32	
Parcel 4	21, 25	
Social Anxiety		.672
Parcel 1	3, 10, 29	
Parcel 2	14, 33	
Parcel 3	37, 39	
Parcel 4	16, 22	
Separation/Panic		.734
Parcel 1	4, 9,	
Parcel 2	7, 30, 34	
Parcel 3	17, 23	
Parcel 4	19, 26	

Table 23*Confirmatory factor analyses fit indices*

Model	χ^2	df	<i>p</i>	χ^2/df	AGFI	CFI	TLI	IFI	RMSEA
APSD Three-factor	138	131	P=.315	1.055	.873	.982	.979	.960	.020
APSD Two-factor	186	103	p<.01	1.832	.805	.726	.680	.740	.075
MASC Four-factor	1041	609	p<.01	1.510	.725	.741	.722	.750	.059
MASC Four-factor parceled	185	109	p<.01	1.70	.763	.887	.858	.891	.069

Table 24*Comparison of fit indices for models*

Model	χ^2	df	<i>p</i>	χ^2/df	AGFI	CFI	TLI	IFI	RMSEA	RMSEA CI	AIC
Lifestyle Consequences (Figure 3)	256	194	<i>p</i> <.01	1.325	.824	.910	.893	.915	.048	.030-.063	375
Full Psychopathy (Figure 4)	660	540	<i>p</i> <.01	1.222	.772	.894	.883	.899	.040	.028-.050	840
Anxiety Prediction (Figure 5)	654	537	<i>p</i> <.01	1.218	.771	.896	.885	.902	.039	.027-.049	840
Diminishing Anxiety Response	685	532	<i>p</i> <.01	1.287	.763	.865	.849	.872	.045	.034-.054	881

FIGURES

FIGURE 1:
Confirmatory factor analysis results for the three-factor Antisocial Process Screening Device model of youth psychopathy

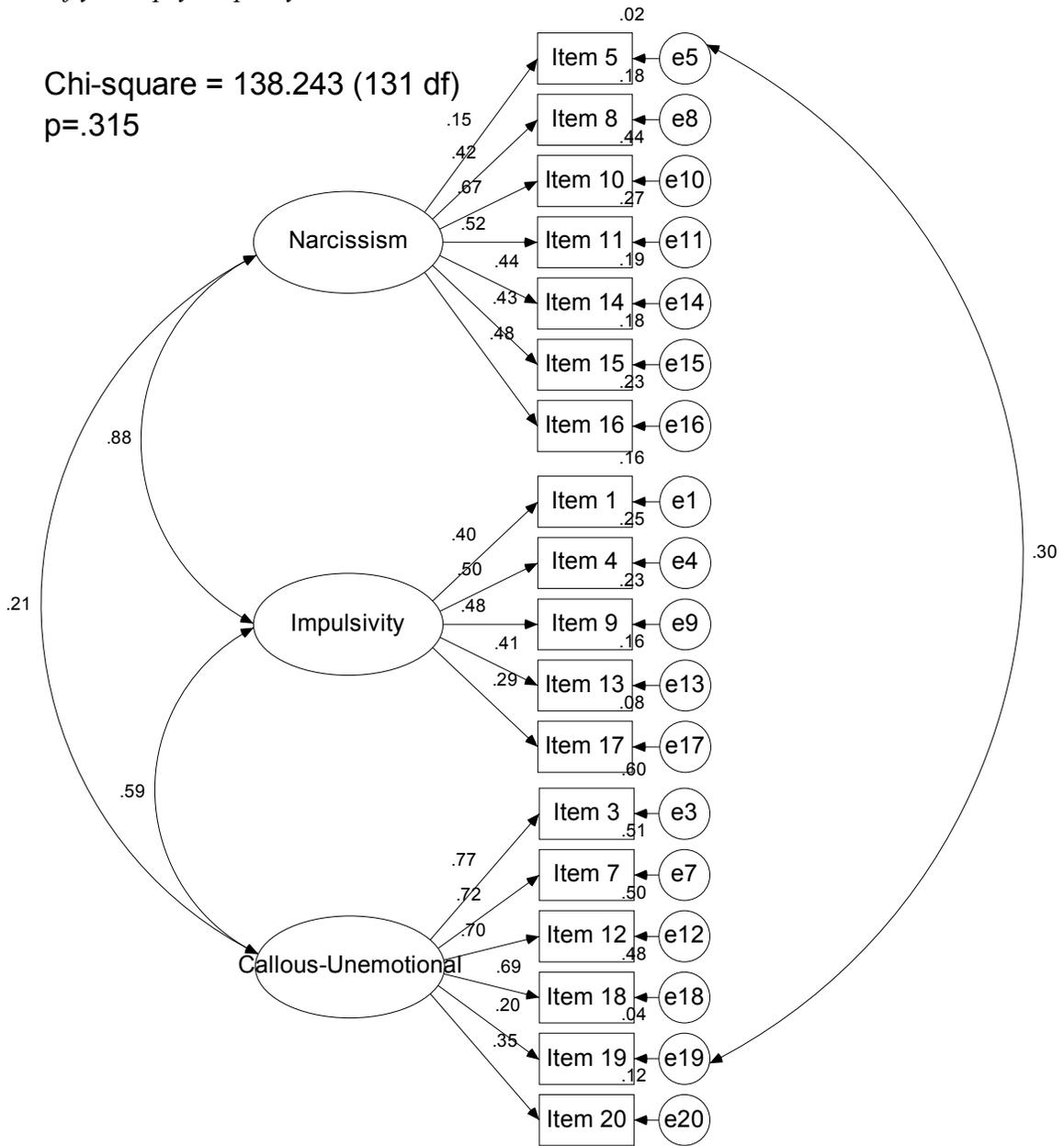


FIGURE 2:
 Confirmatory factor analysis results for the four-factor Multidimensional Anxiety Scale for Children (parceled items)

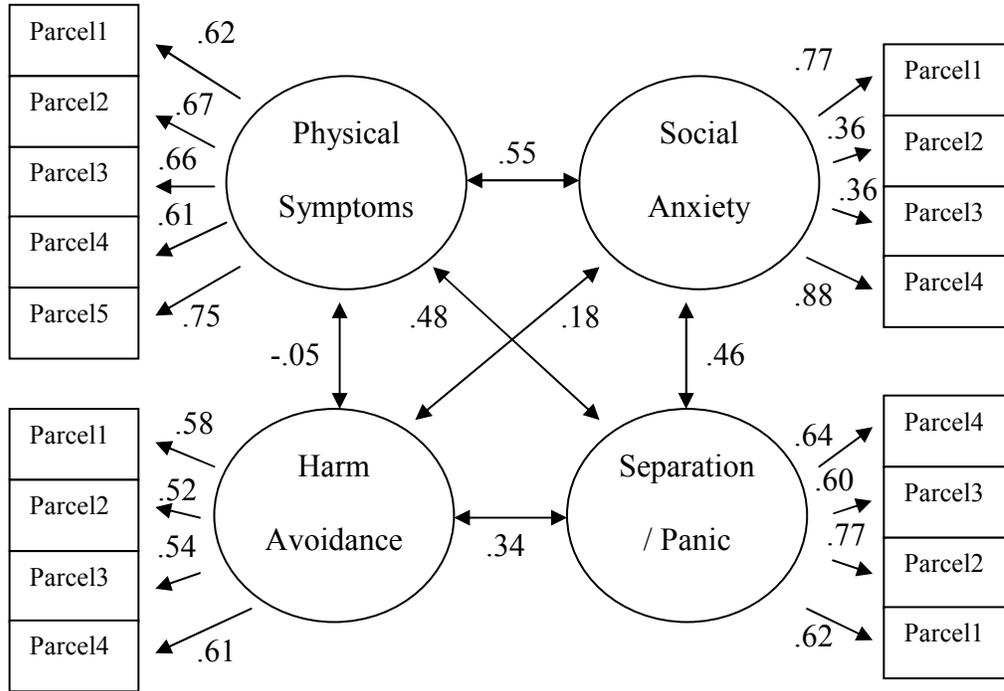
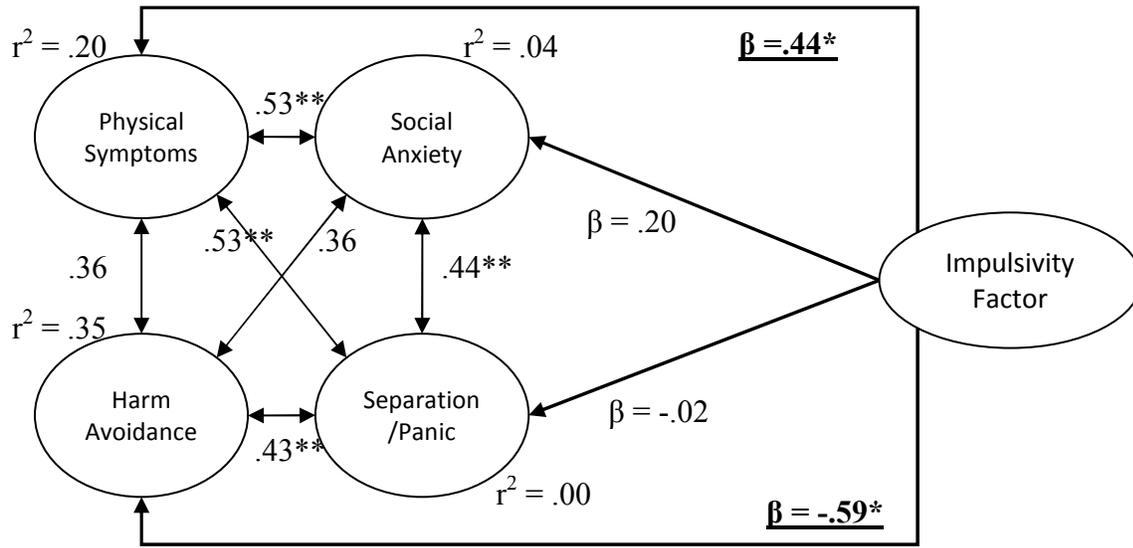


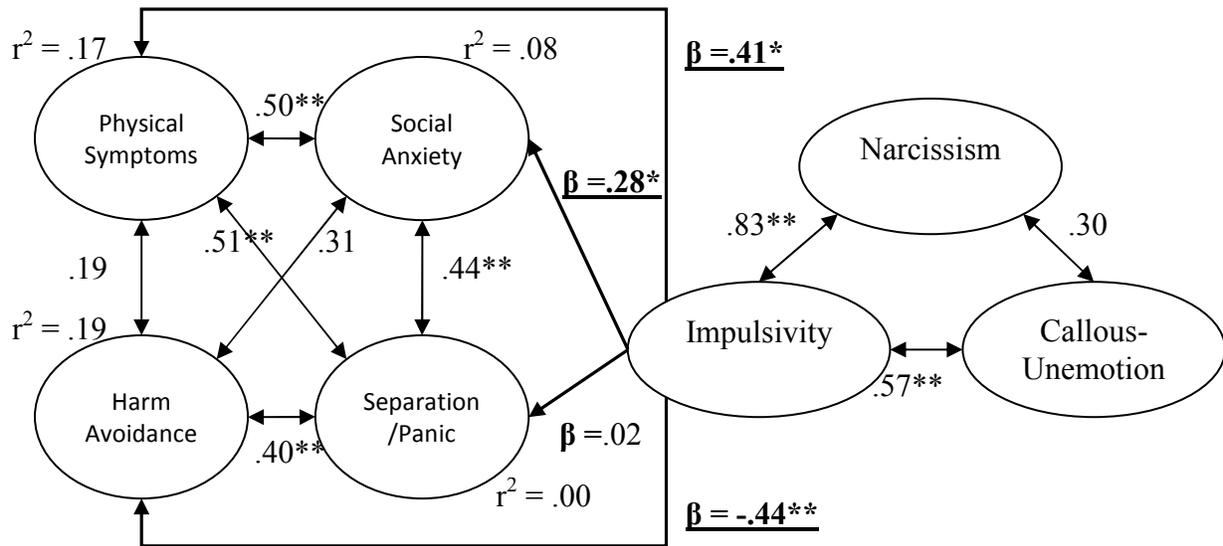
FIGURE 3:
The Lifestyle Consequence Model using Impulsivity as predictor of anxiety



All coefficients are standardized. Consistent with standard notation, latent constructs are enclosed in ellipses. Covariances between dependent latent variables are based on error terms. $*p < .05$, $**p < .01$.

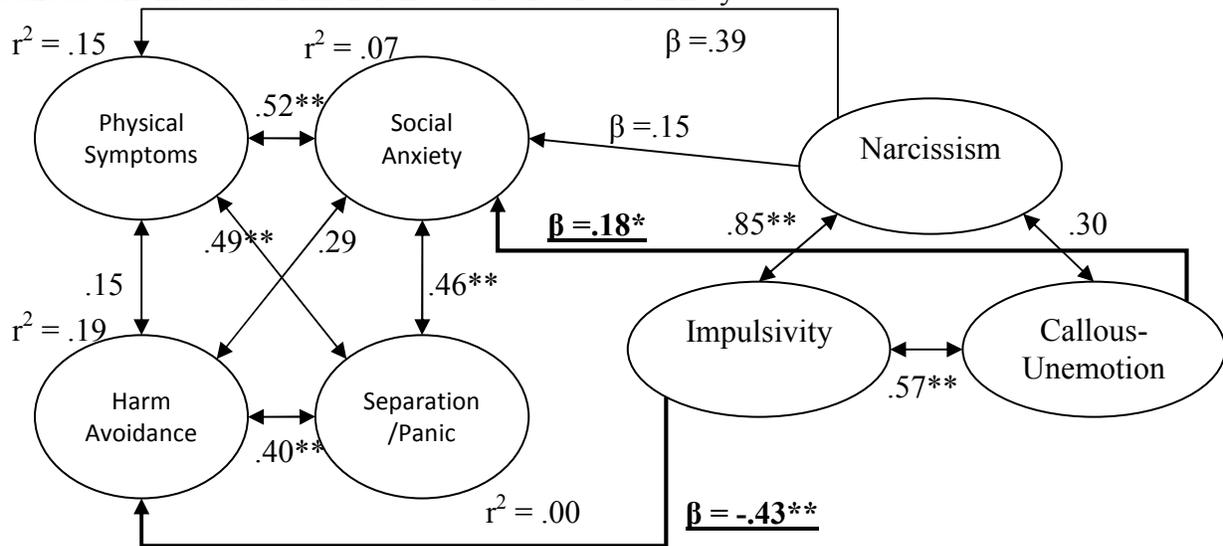
FIGURE 3a:

The Lifestyle Consequence Model using Impulsivity as predictor of anxiety while including Narcissism, and Callous-Unemotional Dimensions



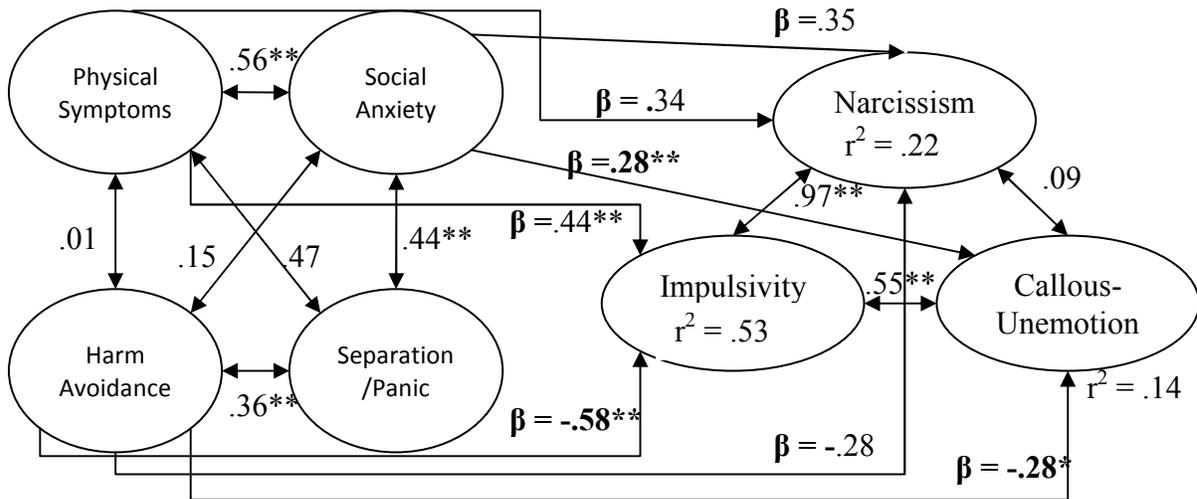
All coefficients are standardized. Consistent with standard notation, latent constructs are enclosed in ellipses. Covariances between dependent latent variables are based on error terms. *p < .05, **p < .01.

FIGURE 4: The Full Psychopathy Response Model, including Impulsivity, Narcissism, and Callous-Unemotional Dimensions as Predictors of anxiety



All coefficients are standardized. Consistent with standard notation, latent constructs are enclosed in ellipses. Covariances between dependent latent variables are based on error terms. * $p < .05$, ** $p < .01$.

FIGURE 5: The Anxiety Prediction Model, including Physical Symptoms, Harm Avoidance, and Social Anxiety as Predictors of psychopathy traits



All coefficients are standardized. Consistent with standard notation, latent constructs are enclosed in ellipses. Covariances between dependent latent variables are based on error terms. * $p < .05$, ** $p < .01$.