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Adult Attachment Styles and Psychopathic Traits:
A Relationship Mediated by Empathy and Emotion Regulation?

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By
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Abstract

Psychopathic personality traits encompass an array of characteristics that emerge early in life and are influenced by insecure attachments between children and their parents. Disruptions in parent-child interactions also affect the development of empathy (Panfile & Laible, 2010) and emotion regulation (Waters, S. F., Virmani, E. A., Thompson, R. A., Meyer, S., Raikes, H. A. & Jochem, R., 2010), which contributes to lasting impairments in interpersonal working models about the self and others (Mack, Hackney & Pile, 2010). The interactions between psychopathy and insecure attachment, low levels of empathy, and the ability to regulate one's emotions have been separately investigated in a number of studies (Mack et al., 2010; Mikulincer & Shaver, 2007; Donahue, McClure & Moon, 2014). However, few studies have examined the complex interactions of all these variables together, and causal mechanisms in non-clinical populations are elusive (Mack et al., 2010). The present study examined whether the association between adult attachment styles (i.e., anxious and avoidant) and psychopathy is mediated by levels of empathy toward others and by levels of emotion regulation (e.g., impulse control difficulties, lack of emotional awareness, etc.). Gender was explored to determine whether these associations differ for males and females. Results of the present study revealed that anxious attachment style significantly predicted emotion dysregulation overall and specifically, impulse control difficulties. Further, this study provided evidence of a relationship between anxious and avoidant attachment styles and facets of empathy. Specific hypotheses related to gender could not be fully explored due to an insufficient number of males in the sample.

Adult Attachment Styles and Psychopathic Traits:**A Relationship Mediated by Empathy and Emotion Regulation?**

The study of psychopathy has captured the interest of clinicians and researchers alike who have sought to clarify the definition, to identify the etiology and underlying pathology, and to determine unique subtypes of the disorder. Individuals with traits of psychopathy may be pathological liars who manipulate others by cheating or stealing and lack empathy for the people they harm and, at more extreme levels, may be aggressive psychopaths who physically harm others or commit egregious violent acts without remorse. Blair, Mitchell, and Blair (2005) assert that “humans have long been concerned by and are fascinated with the concept of evil and the people who are thought to personify evil” (p. 1). Psychopathy has been studied in violent offenders, especially sexually violent predators and murderers because criminals with high levels of psychopathic traits are at greater risk for re-offending (Witt & Conroy, 2009). Baron-Cohen (2011) describes psychopaths as individuals with “zero degrees of empathy,” who are completely detached from the feelings of others, who exert their dominance or control over others, and who are totally preoccupied with their own needs.

Clinicians and researchers have also explored the nature of antisocial behaviors and in an effort to explain its underlying pathology and personality features. In the 1940s, Cleckley first described the syndrome of psychopathy and delineated 16 characteristics from case studies gathered through his clinical work (Blair et al., 2005; Hare & Neumann, 2008). Using Cleckley’s clinical criteria, Robert Hare spent more than three decades empirically examining the major constructs of the disorder and developing valid and reliable methods for assessing its presence (Blair et al., 2005; Hare 1980; Hare, 1999; Hare & Neumann, 2008). Hare revised his original test, the Psychopathy Checklist-Revised (PLC-R), which measures an array of behaviors

across four empirically derived factors including interpersonal, affective, antisocial behaviors, and lifestyle (Hare, 1999; Hare & Neumann, 2008). First, at the interpersonal level, psychopaths often appear to be entertaining, glib, and superficial. While others may perceive them to be charismatic, well educated, and endearing, psychopaths are manipulative, prone to grandiose thinking, and engage in pathological lying. Second, at the affective level, they lack remorse for the harm they may cause others, and they fail to accept responsibility for their behaviors. Although callous absence of remorse and lack of empathy for others are prominent features, psychopaths ironically often identify themselves as the victim in circumstances when they hurt or harm others. Third, antisocial behaviors are common and are characterized by poor behavioral control, early delinquency, and/or criminality. Finally, the lifestyles of psychopaths are characterized as high stimulus-seeking, impulsive, irresponsible, and parasitic. Psychopaths tend to be egocentric; they follow their own rules, and are rarely embarrassed by personal, legal, or financial problems (Hare, 1999; Hare & Neumann, 2008).

Although psychopaths are often portrayed in the media as serial killers, rapists, and criminals, Hare and Neumann (2008) argue that a dimensional versus a categorical approach more accurately captures various aspects and the nature the disorder. Hare (1999) describes “white collar” psychopaths as individuals who function reasonably well in society, and may be employed as doctors, lawyers, psychiatrists, military personnel, businesspeople, artists, and entertainers. Although these individuals rarely or discretely break laws (i.e., tax fraud, overbill or double bill for services, etc.), they possess similar emotionless, egocentric, and remorseless characteristics as those with more violent tendencies. The callous behavior of “white collar” psychopaths is most commonly expressed in the form of emotionless manipulation, cheating and depriving others of personal wants and needs, engaging in meaningless sexual relationships, and

neglecting the welfare of friends and family. These behaviors are masked by their social status, family backgrounds, charm, and intellect which allow them to project a positive, trusting persona, making this type of psychopath difficult to detect (Hare, 1999).

There has been considerable research exploring psychopathy in criminal populations in order to better understand the etiology and risk factors associated with these deviant behaviors. For example, Hicks, Markon, Patrick, Krueger and Newman (2004) studied 96 male prisoners to determine if there were psychopathic subtypes based on personality variables. In this study, participants were given two measures: the Psychopathy Checklist Revised (PCL-R) and the Multidimensional Personality Questionnaire (MPQ-BF) to identify associated personality features. Hicks et al. (2004) utilized a model-based cluster analysis to determine subtypes, and the best-fitting model identified two clusters that were labeled “Emotionally Stable” and “Aggressive” Psychopath. Individuals who scored high on Cluster 1 (PCL-R traits) showed the following profile: low levels of stress reaction, high levels of sensation seeking and risk taking, social dominance, and few close relationships. The most distinctive characteristic of this group was reduced stress reaction, which fit the description of the “classic” psychopath. These individuals appeared to be thoughtful with a high capacity for strategic action, and their extreme levels of social deviance were not immediately obvious due to their superficial, normal presentation. The individuals in this subtype resembled what Cleckley originally called a “mask of sanity,” and Hicks et al. (2004) labeled “Emotionally Stable Psychopaths.”

Individuals in Cluster 2 displayed high rates of aggression and presented with features of under-controlled, maladaptive, externalizing behavior disorders (Hicks et al., 2004). Individuals in this subtype were highly reactive to minor stressors or irritations, were prone to react aggressively, and were more impaired than those in Cluster 1. A profile of impulsivity, low self-

control, high rates of alienation, and few close friends characterized this group. Individuals in Cluster 2 reported an early onset of antisocial behaviors, and had more extreme levels of maladaptive behaviors and personality features than all the comparison inmates. Hicks et al. (2004) labeled this cluster “Aggressive Psychopaths,” and suggested that this group was likely to be comprised of chronic offenders with higher rates of substance use problems. While this study revealed significant profiles for incarcerated populations, other studies have explored psychopathic traits in non-clinical samples to determine the dimensional characteristics of psychopathy.

Hicklin and Widiger (2005) investigated psychopathic personality traits in a large group of undergraduate students using the Five Factor Model of personality - neuroticism, extraversion, openness to experience, conscientiousness, and agreeableness. Participants ($n = 214$) were given a variety of inventories to assess broad features of clinical syndromes, personality disorders, and psychopathy including the: Personality Diagnostic Questionnaire-4 (PDQ-4); Personality Assessment Inventory (PAI); Millon Clinical Multiaxial Inventory-III (MCMI-III); Self-Report Psychopathy Scale-II (SRP-II); Psychopathic Personality Inventory-Revised (PPI-R); Levenson Self-Report Psychopathy Scale (LSRP); and, the Revised NEO-Personality Inventory (NEO-PI-R). Using multiple regression analyses, the strongest correlations were found between the PPI-R and aspects of the “Big Five” personality traits measured by the NEO-PI-R (R -squared = 60%, proportion of variance explained). It was found that agreeableness (-0.56) and conscientiousness (-0.31) were significantly negatively correlated to psychopathy, such that individuals with higher levels of trust, altruism, and competence were lower on psychopathy traits. The deliberation facet (i.e., insightful, behaves ethically) of the conscientious scale was also significantly negatively correlated (-0.48) to psychopathy; while excitement-seeking (0.36) and assertiveness

(0.28) on the extraversion scale were positively correlated with psychopathy (Hicklin & Widiger, 2005).

In contemporary research, high rates of attachment disorders have been found in individuals with psychopathy leading some to hypothesize that there is a direct link between these processes. Early secure attachments between mothers and children have been shown to facilitate the development of empathy and emotion regulation, which are major features lacking in various subtypes of psychopathy. Research exploring attachment theory will be reviewed in more detail.

Attachment

According to Mercer (2006), John Bowlby developed the theory of attachment in the late 1950s, and continued to study the mechanisms throughout his career. As a trained psychoanalyst, Bowlby was well versed in Freud's theory that the internal fantasy life of children formed the basis of neurosis and other mental illness. Bowlby's theory of attachment focused on the importance of everyday interactions in real life, and "demonstrations that children's fears, anger, depression, and behavioral problems could be traced to actual parental threats, excessive punitiveness, distortions of reality, inconsistent care, and separation or loss" (Lieberman, 1997, p. 278).

Bowlby proposed that children develop expectancies and attitudes, or internal working models, about themselves and others based on early interactions with their mother (Bowlby, 1982). Bowlby posited that real or threatened separation (or loss) from the primary caretaker resulted in early trauma experiences that influenced the child's behaviors and formed expectations for interactions with others (Bowlby, 1969/1982, 1973, 1980). Researchers including Mikulincer and Shaver (2007) hypothesized that attachment was a "biologically based

behavioral system” formed in childhood that is activated to promote protection and survival against dangerous or threatening environmental stimuli. According to the theory, attachment styles develop and are dependent on the child’s experiences with responsive caregivers who provide comfort, nonjudgment, and protection. Behavioral responses are activated when infants experience discomfort or distress, and they seek comfort and proximity to attachment figures. As such, infant fears, anxieties, and/or concerns are diminished by caring, supportive caregivers. Because infants are not able to survive on their own, Bowlby viewed their need for proximity to attachment figures as innate and evolving over time (Mikulincer & Shaver, 2007).

Early in her career Mary Ainsworth, a member of Bowlby’s research team, gathered empirical data that influenced Bowlby’s own views of attachment and led him to expand his original model (Bretherton, 1992). Using systematic observation, Ainsworth studied mother-child interactions during play, exploration, feeding, discipline, and affectionate contact situations. Sensitive, caring versus rejecting, non-responsive maternal care triggered either comfort or distress and set up “expectations” in the infant based on these interactions (Ainsworth, Blehar, Waters & Wall, 1978). Attached caregivers in close proximity provided comfort in times of need or distress, provided reliable protection and reinforcement, and also served as a “secure base” for the child in a comfortable environment (Ainsworth & Bowlby, 1991).

Bowlby (1969, 1982) and Ainsworth (1973) identified four distinct phases in the development of attachment between infants and caregivers. These phases included pre-attachment phase (birth to two months), attachment-in-the-making phase (two to six months), clear-cut attachment phase (six to seven months) and goal-corrected partnership (beyond two years of age). The fourth phase, goal-corrected partnership, is the least susceptible to damage due to an infant’s increased capabilities of obtaining proximity and meeting goals. Based on her

research, Ainsworth identified four types of attachment style between the caregiver and child including: secure attachment, insecure-avoidant attachment, insecure-ambivalent attachment, and insecure-disorganized/disoriented attachment (Ainsworth et al., 1978).

In an effort to further explain the importance of these early interactions, Mikulincer and Shaver (2007) identified two distinct dimensions of insecure attachment: attachment-related avoidance in which the individual avoids emotional closeness and relies heavily on oneself to satisfy needs; and, attachment-related anxiety in which the individual desires emotional closeness but fears abandonment and experiences extreme insecurities. Individuals who appear low on both avoidance and anxiety attachment dimensions are said to have a secure attachment style, and develop trust in relationships with attachment figures. Mikulincer and Shaver (2007) indicate that early infant-caregiver interactions have an important influence in the development of personality, social relationships, and new attachment-relationships in children and exert an influence into adulthood.

In a separate line of research, Mercer (2006) focused on children with a disorganized/disoriented attachment style who displayed contradictory behaviors and emotions toward his or her caregiver. Mercer found that children with disorganized/disoriented attachment styles exhibited signs of desiring closeness, while simultaneously seeking distance from attachment figures. Although these early interaction patterns were related to adult pathology, it is difficult to determine a causal relationship because children with disorganized/disoriented attachment styles often had parents with psychopathology and experienced maltreatment and neglect (Mercer, 2006).

According to Shaver et al. (1987) and Oatley and Jenkins (1996 as cited in Mikulincer & Shaver, 2007), emotions are activated by unexpected or important personal changes due to

internal or external stimuli. Individuals experience positive emotions when they perceive changes as beneficial to goal-attainment, and conversely experience negative emotions when they perceive these changes as detrimental. Perceptions of personal changes depend on one's appraisal of the action or event; and when negative, these perceptions can be reappraised through activation of the emotion regulation system. While attachment styles influence the way in which individuals view their relationships with others, they may also impact one's ability to recognize and respond to the emotions of others. The relationship between attachment styles and levels of empathy is a focus of the current study and will be explored next.

Attachment and Empathy

As briefly discussed, the social and emotional development of children depends largely on the quality of the caregiver-child attachment relationship. Feelings of empathy for others are closely linked to early attachment experiences. Mikulincer and Shaver (2007) reported that secure attachment between the caregiver and child facilitates the growth of empathy and positive relationships. Children with secure attachments develop a sense of trust when their needs are met by consistent, sensitive attachment figures. These experiences create "expectations" or internal models of how relationships work (Panfile & Laible, 2012). Positive relationships and communication patterns are fundamentally related to one's abilities to recognize emotions in others and to respond appropriately. It is through these positive interactions, that children develop prosocial behaviors, become aware of the feelings of others, and react with empathy and compassion.

In an effort to explore the impact of these interactions, Panfile and Laible (2012) examined 64 mother-child dyads to see if attachment security was a predictive factor for developing empathy. The average age of mothers, who were assumed to be the primary

caregiver, was 34.81 years; whereas, children had a mean age of 36 months. Mothers completed questionnaires rating their child's behavior and the quality of the mother-child relationship, using five separate scales including: the Children's Behavior Questionnaire (CBQ) and the Emotion Regulation Checklist to assess levels of regulation and negative emotionality; the Attachment Q-set to measure attachment security; and, the Bryant's (1982) Index of Empathy and the My Child scale to assess their child's level of empathy. The prosocial behavior of the children was also evaluated based on their reactions to a female confederate in need of help (Panfile & Laible, 2012). Results of the study revealed that secure attachment predicted both levels of empathy and emotion regulation in young children; while further analysis revealed that emotion regulation mediated the relationship between attachment and empathy (Panfile & Laible, 2012).

In summary, caring, responsive parenting facilitates secure attachment in young children. These supportive experiences form the bases for internal working models, whereby children develop expectancies that relationships with others will also be responsive and comforting or non-responsive and rejecting. Secure attachment provides a foundation by which children begin to develop awareness and empathy for others, while the ability to regulate one's emotions further facilitates the expression of empathy in children. The quality of parent-child relationships influences this process and appears fundamental to the development of emotion regulation. The complex interaction between attachment, empathy, and emotion regulation will be reviewed next.

Attachment and Emotion Regulation

According to Mikulincer and Shaver (2007), the attachment system is activated when the child perceives a threat, experiences distress, and then seeks proximity to protective caregivers. When attachment figures provide comfort to the child, levels of distress are reduced. These

repeated experiences reassure the child that distressing emotions can be managed, which form the basis for the development of emotion regulation. The availability of a responsive caregiver in threatening situations facilitates the child's ability to successfully manage their distress; but conversely, if the caregiver is unavailable, hostile, or non-responsive, the child's need for security, attention and comfort go unmet, which makes it harder for them to cope with and manage distressing emotions. Mikulincer and Shaver (2007) described three types of attachment including secure, avoidant, and anxious style, and examined how each dimension influences the development of emotion regulation.

First, an individual develops a secure attachment style when his or her needs are repeatedly and reliably met by the primary caretaker. In short, a sense of security develops through interactions with sensitive, available and responsive attachment figures who provide relief when the child is feeling anxious, fearful and/or upset. When the caretaker consistently meets their needs, the child develops a positive view of self and others, and a sense of trust that someone will respond and provide comfort when it is needed (Mikulincer & Shaver, 2012). Through this process, the child also learns that stressful feelings are temporary, and they learn to regulate them. These positive interactions between the child and caregiver provide a safe place for the child to openly express his or her needs, while learning to regulate his or her emotions (Mikulincer & Shaver, 2007).

Second, Mikulincer and Shaver (2007) noted that a child develops an avoidant attachment style when a caregiver is unavailable and does not provide proximity support during threatening or stressful events or experiences. Parents may also react to child signals of distress in dismissive and/or rejecting ways. These interaction patterns teach the child that his or her efforts to seek comfort and protection will go unacknowledged or even punished, and that these

needs will go unmet. Over time, the child becomes uncomfortable seeking proximity or help from caregivers, which ultimately affects how they view others in the future. They have trouble developing self-regulation skills because they have not learned self-soothing and calming behaviors, which develop from these caring interactions. Avoidant children do not securely attach to their caregiver and thus, they learn to avoid or deny their needs and to hide their emotions from those around them because when expressed in the past, these emotional needs have been ignored. Cassidy and Kobak (1988) described these avoidant behaviors as *deactivating strategies* which the child uses to protect themselves from disappointment and to help them cope with feelings of threats. Their attempts to regulate their feelings are primarily through avoidance and denial; and these patterns are stable into adulthood (Mikulincer & Shaver, 2007, 2012).

Lastly, another type of insecure attachment also develops in children when there is a lack of consistent comfort and support from the caregiver but it is expressed in the form of anxious attachment (Mikulincer & Shaver, 2007). Children on this dimension also do not develop a sense of connection and safety and they often adopt other ways to get the attention of caregivers. Cassidy and Kobak (1988) described these *hyperactivating strategies* (e.g., clinging, controlling and other negative behaviors) as the child's attempt to receive attention from attachment figures in hopes that they will respond in a soothing manner. Anxiously attached children may even engage in behaviors that perpetuate their distress in order to receive wanted attention. Because they yearn for attention and protection, they have a mindset of doing whatever it takes to fulfill these needs (Mikulincer & Shaver, 2007). Sometimes these attention-seeking behaviors do result in a positive response from the caretaker such that the needy, anxious child is taught an unreliable, partial schedule of reinforcement that increases the persistent use of these

hyperactivating strategies because the child never knows when these behaviors may get them the comfort they seek (Mikulincer & Shaver, 2012). When these behaviors do not produce the comfort they seek, children with attachment anxiety often respond with anger and resentment. Moreover, a sense of anxiety and fear of being abandoned and/or rejected remains into adulthood and impacts later relationships (Mikulincer & Shaver, 2007, 2012).

In summary, early interactions between the child and caretaker produce either secure and/or insecure attachments styles. These early relationships provide the child with sense of safety or insecurity when expressing strong emotions and a context for learning to how to regulate their feelings. Children with avoidant attachment styles learn to regulate their emotions by denying and/or avoiding them, while those with anxious attachment styles learn to escalate, amplify and/or exaggerate negative emotions. Disruptions in early attachment experiences and emotional regulation have been associated with a number of disorders in adults including levels of psychopathy. These interactions will be briefly reviewed next, and in more detail in a later section on psychopathy.

Attachment and Psychopathy

Researchers and clinicians have explored the nature of psychopathy for decades in an effort to identify risk factors and to explain how this disorder develops. Two major research findings have emerged – disordered or insecure attachment is related to interpersonal dysfunction and, attachment styles predict levels of impulsivity, antisocial behavior and poor behavioral control. In a study of 209 college students in a non-clinical setting, Mack, Hackney, and Pyle (2011) investigated the nature of psychopathy and attachment styles using the Experiences in Close Relationships Scale and Levenson Self-Report Psychopathy Scale (LSRP). The LSRP measured two facets of psychopathy: primary psychopathic traits were characterized by

interpersonal or affective deficits, and secondary psychopathic traits were characterized by the presence of antisocial behaviors. Results revealed a significant positive relationship between anxious attachment style and both primary and secondary psychopathy; avoidant attachment was significantly correlated with secondary psychopathy alone; and, anxious-avoidant attachment was associated with both primary and secondary psychopathy. Although it was hypothesized that avoidant attachment styles would be related to primary psychopathy traits, this occurred only when both avoidant and anxious attachment styles were present together (Mack et al., 2010). The authors were not able to explain this finding, and further cautioned that little is known about individuals with anxious-avoidant attachment styles. It appears that further study is needed to determine if this was an artifact of the particular sample or whether this attachment pattern is more prevalent.

In a study of incarcerated adults, Hansen, Waage, Eid, Johnsen and Hart (2011) explored the relationship between anxious or avoidant attachment styles and psychopathic tendencies. In this study, 92 Norwegian male prison inmates were assessed using Norwegian versions of the NEO Five-Factor Model and Relationship Scale Questionnaire. Results showed that inmates had higher rates of avoidant attachment styles rather than anxious attachment styles. When age and personality factors (Big Five variables) were controlled for, a hierarchical regression analyses showed that anxious attachment styles explained 23% of the variance of aggression in participants' intimate relationships. Neuroticism was also found to be a moderately significant predictor of aggression (Hansen et al., 2011).

As previously reviewed, Craig et al. (2013) found that internal working models associated with attachment styles mediated the relationship between the effects of parenting and the development of psychopathy. Additionally, the authors explored anxious and avoidant

attachment styles and found that attachment anxiety may result from lower self-assurance and poor affective regulation which is caused by a lack of affection from caregivers. Because attachment patterns develop at such a young age, and disruptions in these emotional patterns are associated with higher levels of psychopathic traits in adults, an exploratory analysis of the trajectory between these variables appears to be warranted.

The extent to which other factors may be causally related to psychopathy needs further study. To date, two additional factors have emerged in the literature in relation to psychopathy, including empathy and emotion regulation. First, how does the development of empathy for others play a role in these dynamic constructs? Further, does empathy for others lead to better emotion regulation, which ultimately buffers or mediates the link between adult attachment and psychopathy? These constructs and their interactions will be reviewed in more detail.

Empathy

The concept of “*Einführung*” originated in nineteenth-century Germany, and when translated by American experimental psychologists in the twentieth century, it became known as “empathy” (Wispe, 1987). During this time period, there was a lot of confusion and a lack of consensus about the definition of empathy. The confusion was due in part by researchers from various disciplines, including personality, developmental and social psychologists and psychotherapists, who were investigating the meaning of empathy and describing how it applied to their particular field of psychology (Wispe, 1987). Plutchik (1987) asserted that the development of empathy was dependent on early interactions between the mother and child, where the mother provided care, support, and protection of their newborns, thereby increasing survival of the offspring. One’s ability to be aware of the distress and emotions of others appears to be formed through these interactions with caregivers.

In addition, Thompson (1987) contended that mother-infant interactions were crucial to the development of the child's emotional regulation, which subsequently provided a foundation for empathic responding and social interactions with others. While researchers are still unsure of a child's ability to reference emotions as genuine empathy, it has been shown that children as young as 10 months of age participate in social referencing and recognize emotional cues (Thompson, 1987). Social referencing refers to the process whereby infants learn to regulate their own emotions and behaviors by observing emotional cues from caregivers, especially mothers (Hertenstein & Campos, 2004).

According to Baron-Cohen (2011) "Empathy occurs when we suspend our single-minded focus of attention and instead adopt a double-minded focus of attention" (pp. 15-16). Baron-Cohen elaborated on this process and defined empathy as the ability to be attentive to another's thoughts and feelings while simultaneously focusing on oneself. Empathy was further described by Baron-Cohen (2011) as, "our ability to identify what someone else is thinking or feeling and respond to their thoughts and feelings with an appropriate emotion" (p. 16). These two main facets, recognizing and responding to emotions or feelings, can be observed and their effect on social interactions can be examined (Baron-Cohen, 2011).

So far this review has examined how adult psychopathy is influenced by early interactions and secure attachments between the parent and child. Secure attachment also appears to facilitate a child's development of two specific processes - the ability to develop empathic responding and to regulate one's emotions. The nature of the relationship between empathy and emotion regulation is discussed next.

Empathy and Emotion Regulation

Another critical process involved in establishing healthy relationships is the development of emotion regulation, which also influences one's ability to feel and express empathy.

According to Baron-Cohen (2011), individuals fluctuate on an empathy spectrum. Lacking empathy is characterized as being "single-minded" or only thinking of oneself; while, having empathy is being "double-minded" or recognizing the feelings and thoughts of others at the same time as one's own. Empathic individuals display concern, and respond appropriately to the thoughts and feelings of others. Baron-Cohen (2011) indicated that individuals with "zero degrees of empathy" do not recognize the feelings of others, and do not experience regret or remorse when their actions hurt or harm other people.

While numerous studies have investigated the relationships between attachment, emotion regulation, and empathy, the question of whether these interactions are unidirectional or bidirectional in nature has not been fully resolved. Panfile and Laible (2012) examined the extent to which emotional regulation mediated the relationship between attachment and empathy. The authors hypothesized that more securely attached children would score higher on measures of empathy due to their ability to regulate their emotions. Furthermore, they hypothesized that children who scored higher on measures of empathy would also exhibit more prosocial behaviors due to their ability to recognize and respond to the feelings of others. In this study, emotion regulation mediated the relationship between attachment and empathy (Panfile & Laible, 2012). Given these findings, it is reasonable to conclude that securely attached children develop appropriate emotion regulation which in turn helps them develop higher levels of empathy.

In an effort to further explore these dynamics, Niven, Macdonald, and Holman (2012) examined the relationship between interpersonal emotion regulation, one's ability to influence the feelings of others (i.e., helping to improve or worsen affect), and more specific facets of

empathy and attachment style. The authors found that individuals tend to alter their strategy of interpersonal emotion regulation when they interact with different people, such as family members, romantic partners, or co-workers. Additionally, these researchers examined whether this “spin,” or alteration in behavior across different interpersonal contexts was detrimental to the individual and his or her social relationships. Niven et al. (2012) found that perspective taking and empathic concern were positively related to “spin,” while anxious attachment styles negatively predicted “spin.” Another aspect of the study showed that low empathic concern, low perspective taking, and high anxious attachment style were closely related to higher levels of emotion regulation “spin.” No significant interactions were found for the relationship between avoidant attachment styles and empathy. The authors concluded that interpersonal emotion regulation varies depending on the situation or context (i.e., the person one is interacting with), and this inconsistency may create personal and social interaction problems for the individual (Niven et al., 2012).

In another study, researchers investigated the relationship between morality, emotion regulation, internalizing and externalizing behaviors, and callous-unemotional traits in children six to 12 years of age whose mothers were incarcerated (Lotze, Ravindran & Myers, 2010). Using regression analyses examining self-reports and adult reports of the child’s behaviors, the authors found that poor emotional regulation was a significant predictor of externalizing behaviors (e.g., conduct disorders), internalizing behaviors (i.e., depression, anxiety), and callous-unemotional traits. Specifically, higher levels of positive emotion regulation predicted lower internalizing behaviors and higher callous-unemotional traits. Also, rates of externalizing behaviors were significantly higher in boys than girls. Lotze et al. (2010) noted that children of incarcerated mothers are at-risk for exposure to dangerous environmental factors, may lack

appropriate role models for developing emotion regulation and morality, and appear predisposed to developing externalizing or internalizing behavior problems. It was interesting to note, that adolescents who exhibited callous-unemotional traits also had high levels of positive emotion regulation which was unexpected. The authors suggested that although individuals who exhibit callous-unemotional behaviors have sufficient insight into the feelings of others, they use the information to exploit the vulnerabilities of others in order to manipulate or deceive (Lotze et al., 2010).

Typically, empathy triggers our emotional regulatory systems to back off and/or to alter our behaviors to avoid harming others. What happens to these regulatory systems in those individuals with high psychopathic traits? Do they purposefully ignore emotional signals from others, have they learned maladaptive responses from early attachment figures, or do they have a number of impairments in emotional processing that interfere with self-regulation? The next sections will explore these questions.

Empathy and Psychopathy

Psychopathy has been defined as an extreme lack of empathy (Blair et al., 2005). Researchers suggest that empathy exists on a continuum, ranging from high to low; where individuals with high levels of empathy present little harm to society, while those at the other end of the continuum may be extremely dangerous. Kantor (2006) stated that psychopaths are more common than portrayed in the media, and are generally not like the violent predators that often depicted in movies, books, and television. Kantor (2006) described a group of individuals he referred to as “everyday psychopaths” who lack remorse or empathy, which allows them to manipulate and take advantage of the weaknesses of others. Although they may not be violent offenders or murderers, “everyday psychopaths” are individuals we might encounter on a daily

basis and may include businessmen/women who lie to their employees about a company's budget, religious leaders who manipulate followers to assert their power, or family members who take advantage of another member's wealth. Because empathy is so closely related to psychopathy, and psychopathic traits may be relatively common, it seems important to explore this link.

In an effort to investigate these dynamics, Dadds, Hawes, Frost, Vassallo, Bunn, Hunter, and Merz (2009) explored the relationship between cognitive versus affective empathy in children between the ages of three and 13 years. Dadds et al. (2009) hypothesized that deficits in cognitive empathy, or the inability to understand the thoughts and feelings of others, would not be associated with psychopathic traits in children. In other words, it was assumed that young children with psychopathic traits would recognize and understand the emotions of others, but they would not respond with appropriate levels of empathy. This hypothesis was not supported, as Dadds et al.'s (2009) found that deficits in cognitive empathy were significantly related to elevated levels of psychopathic traits in young children. Unlike studies with adults with psychopathy, young children did not accurately process the emotions of others.

Studies with young adults have also examined the relationship between empathy and psychopathy. For example, Mullins-Nelson, Salekin and Leistico (2006) examined levels of psychopathy and various dimensions of empathy in a community sample of 174 males (25%) and females (75%) from an undergraduate university. In this study a number of measures were used including: the Psychopathic Personality Inventory-Short Form (PPI-SF); the Diagnostic Analysis of Nonverbal Accuracy-2 (DANVA-2) to test recognition of nonverbal cues; the Test of Self-Conscious Affect – Version 3 (TOSCA-3) to assess empathic concern and perspective-taking; and, the Interpersonal Reactivity Index (IRI) to assess cognitive and affective empathy. Levels

of past conduct-related problems were also measured using six open-ended questions pertaining to the presence of previous antisocial behavior. Results showed a significant negative correlation between total psychopathy scores and levels of affective empathy (-.50). It was interesting to note that affective empathy had a significant negative correlation with total psychopathy scores, while cognitive empathy was not significantly related (-.08). Furthermore, as predicted psychopathy traits were positively correlated with levels of previous antisocial conduct problems (Mullins-Nelson et al., 2006).

In addition to studies with community populations, the relationship between cognitive and affective empathy and psychopathy has been studied in criminal populations (Domes, Hollerbach, Vohs, Mokros & Habermeyer, 2013). In light of previous research, the authors hypothesized that offenders higher in psychopathic traits would show deficits in emotional empathy, but not cognitive empathy. In this study, measures to assess empathy and psychopathy included the Psychopathy Checklist-Revised, the Empathy Quotient, and the Interpersonal Reactivity Index. Social cognition was measured with the “Read-the-Mind-in-the-Eyes” task, which requires participants to label an individual’s emotions by seeing only their eyes. Lastly, the Multifaceted Empathy Test was used to assess both direct and indirect emotional empathy and cognitive empathy (Domes et al., 2013). This study yielded unexpected results, in that more severe or extreme levels of psychopathy were not significantly related to low levels of emotional or cognitive empathy. In fact, individuals with moderate psychopathy scores had the lowest emotional empathy scores on the Multifaceted Empathy Test (Domes et al., 2013). This study raises significant questions that remain unanswered – that is, why would individuals with more extreme levels of psychopathy be more empathic than those with lower levels? Was there something unique about this criminal population? Do criminals with extreme psychopathy learn

to “read” the emotions of others to avoid harm so that emotional empathy serves as a protective factor in the prison environment? Or do some criminals become more adept at using this information to deliberately manipulate or harm others?

The literature review to this point provides evidence that low levels of empathy are related to adult psychopathy. In an effort to develop a robust model of psychopathy, the relationship between aspects of the empathy construct, particularly moral decision making, will be reviewed next.

Empathy, Psychopathy and Morality

Researchers are beginning to explore the complex relationship between empathy, moral decision making and psychopathic traits in non-clinical adult samples (Seara-Cardoso, Dolberg, Neuman, Roiser, & Viding, 2013). In this study, 100 females (mean age of 22.68 years), were given the following measures: the Wechsler Abbreviated Scale of Intelligence (WASI); Self-Report Psychopathy Scale 4 Short-Form (SRP-4-SF); the Empathy-Eliciting Short Stories task; subscales of the Questionnaire of Cognitive Affective Empathy; an empathy image task from the Self-Assessment Manikin; the empathic concern scale of the Interpersonal Reactivity Index; the Moral Emotions Task; and, the Moral Dilemmas Task. Results revealed that women with higher affective-interpersonal levels of psychopathy displayed significantly lower levels of empathy, experienced less distress when making decisions with moral dilemmas (i.e., involving harm), and expressed fewer moral emotions involving others (Seara-Cardoso et al., 2013). In this study, “moral” emotions were defined as feelings of guilt, compassion, and anger directed at self and/or others. The authors concluded that affective empathy is necessary for an individual to experience moral emotions, including compassion and guilt, which affects their moral decision-making. Seara-Cardoso et al. (2013) also reported that women with higher affective

interpersonal deficits were more likely to select experimental conditions that would cause harm to a single, innocent victim to save the lives of others. These findings were similar to a previous study with male participants.

In a community sample of adult males, Seara-Cardoso, Neumann, Roiser, McCrocy, and Viding (2012) used the same factors as those described in the Seara-Cardoso et al. (2013) study. Males and females high on the affective-interpersonal dimension of psychopathy showed similar patterns with less empathic concern, less guilt and compassion, and less distress when making moral decisions (Seara-Cardoso et al., 2012). Although the results were similar for males and females on the affective-interpersonal dimension, there were some unique findings based on gender. Unlike females, there was a significant negative relationship between the antisocial dimension of psychopathy in males and their level of empathic concerns for others in distress. It is puzzling why males and females would differ on this one facet of psychopathy and, specifically why males on the antisocial dimension showed more empathic concern for others.

These differences further complicate our search for a cohesive model of adult psychopathy and its underlying features, and suggest the need for further examination of intervening variables that might mediate the relationship between empathy and of facets of psychopathy. The next section will provide a more in-depth exploration of the relationship of emotion regulation and psychopathy.

Emotion Regulation

Mandler (1980) described emotions as a conglomeration of perceptions including cognitive evaluation and instinctive arousal of an event, situation, or person. An individual's emotional state is generated through private, subjective experiences in which he or she uses prior understanding of the world and his or her personal evaluations. Mandler (1980) also described

the relationship between emotional experiences and language. Specifically, he stated that human language influences the cognitive evaluation of emotions and therefore affects the way individuals evaluate the world. Verbal labels and facial expressions are used to categorize emotional experiences and thus contribute to an individual's cognitive evaluation of emotional events. Mandler (1980) also acknowledged that social pressures and norms influence one's private emotional states. Furthermore, Pribham (1980) portrayed emotional behavior as the expression of positive and negative experiences, which are appraised by the individual's internal working model of self and others. Pribham (1980) also noted that the emotional behavior of an individual is often perceived and labeled by the recipient, which creates the potential for misunderstanding between the individual's and recipient's social communication.

Additionally, Klinnert, Campos, Sorce, Emde, and Svejda (1980) provided insight into the relationship between emotional reactions and social regulatory functions. For infants, social referencing, or the way in which emotional expressions are communicated from parent to child, is essential to their emotional development. Infants and young children utilize caregivers' appraisals of unfamiliar or uncertain circumstances. The way in which an individual responds emotionally to others has been shown to mediate the empathic responses from the perceiver. Emotional reactions of others may aid individuals, especially infants and children, in their learning of prosocial behavior, by providing information about how to appraise or evaluate unfamiliar persons or situations. These responses facilitate prosocial behavior because emotional expressions are contagious, and appear to assist the development of social regulatory functions (Klinnert et al., 1980).

In other research, Gross and Thompson (2007) identified three fundamental aspects of emotion regulation. First, individuals regulate positive and negative emotions by either increasing

or decreasing their frequency. Second, emotion regulation exists on a continuum from conscious to unconscious processes. Third, the positive or negative effects on emotion regulation depends on the context in which it is used by the individual in such a way that may improve, neutralize, and/or hinder circumstances or goal attainment (Gross & Thompson, 2007). According to Gross and Thompson (2007), emotions arise when an individual appraises a situation to be pertinent to obtaining his or her goals, regardless of whether the goals are enduring, transient, conscious, or unconscious. Emotions are also multifaceted, such that they involve variance in behavior, subjective experiences, and the way these impact an individual's brain. Emotional development is affected by maturation of the individual and learning from positive and negative experiences.

When examining the development of emotion regulation, Stegge and Terwogt (2007) found that children gain the knowledge of emotional situations and modes of expression throughout preschool and the elementary school years. This maturation and increased cognitive capacities allow for a greater ability to appraise external situations and regulate internal desires, beliefs, and emotions. Throughout the development of emotion regulation, children and adolescents learn perspective-taking and problem-solving skills when faced with conflict or confrontation (Stegge & Terwogt, 2007).

Westen and Baglov (2007) proposed a clinical-empirical model of emotion regulation and described how implicit/explicit and adaptive/maladaptive regulation occurs. This model is based on the evolutionary constructs of approach and avoidance behaviors. Approach behaviors are motivated by the affective or emotional salience of the situation and are influenced by previous knowledge of the world. In this case, the individual appraises the situation or person and over time, his or her emotional state is formed. Approach or avoidance behaviors also depend on whether the situation or person facilitates or impedes goal attainment. There seems to

be a delicate balance between approach and avoidance behaviors, which is motivated by anticipated positive or negative affect (Westen & Baglov, 2007).

Emotion Regulation and Psychopathy

Previous research has found significant relationships between emotion regulation and levels of psychopathy. Specifically, Donahue, McClure and Moon (2014) examined 91 male undergraduate students and 28 court-ordered offenders enrolled in an anger management program, and measured difficulties in emotion regulation and levels of psychopathy. The authors hypothesized that emotion regulation difficulties would positively predict psychopathic traits; and, even after controlling for negative affect, emotion regulation difficulties would account for significant variance in the Self-Centered Impulsivity factor of the Psychopathic Personality Inventory-Revised (PPI-R). Additionally, it was hypothesized that emotion regulation difficulties would not be related with the Fearless Dominance factor of the PPI-R (Donahue et al., 2014). Correlational analyses showed a significant positive relationship between Self-Centered Impulsivity and emotion regulation difficulties, and a moderate negative correlation between Fearless Dominance and poor emotion regulation. Hierarchical regression analyses showed that after controlling for negative affect, emotion regulation still accounted for a significant portion of the variance in the Self-Centered Impulsivity factor, but a much smaller amount of variance in Fearless Dominance (Donahue et al., 2014).

These findings are interesting and suggest that individuals high on Self-Centered Impulsivity may be vulnerable to other externalizing disorders related to poor self-regulation. Other studies have shown that impulsive, antisocial correlates include high rates of child and adult antisocial behaviors, substance use, high aggression and alienation, and less social closeness. Individuals with these personality features tend to employ coercive, controlling

behaviors (e.g., physical force) in social interactions (Ross, Benning, Patrick, Thompson & Thurston, 2008). Conversely, the Fearless Dominant factor has been shown to be related to adult antisocial personality disorders, low anxiety, high-risk behaviors, and narcissism. However, others may tolerate these individuals because they use charm, and other more socially acceptable methods to influence others (Ross et al., 2008).

In a separate study, Malterer, Glass, and Newman (2008) explored the relationship between trait emotional intelligence and psychopathy in 439 male inmates. Participants in this study completed the Psychopathy Checklist-Revised (PCL-R), the Shipley Institute of Living Scale (SILS; a measure of general functioning), the Welsh Anxiety Scale (WAS), and the Trait-Meta Mood Scale (TMMS; measures ability to monitor and regulate emotions). Individuals who possessed higher antisocial traits were less able to regulate and repair their emotions; while individuals with high levels of interpersonal-affective psychopathic traits showed lower abilities to recognize their emotions. Using regression analyses to control for potential confounding effects of the two components of psychopathy, the results revealed that antisocial behaviors explained a significant amount of variance in an individual's ability to regulate his or her emotions (Malterer et al., 2008).

Summary

In summary, psychopathy has been extensively studied in criminal populations and non-offender, nonclinical groups. Hare and Neumann (2008) empirically derived four factors of psychopathy: Interpersonal (i.e., superficial charm), Affective (i.e., lack of remorse and empathy), Lifestyle (i.e., impulsivity) and Antisocial (i.e., poor behavior controls). These factors are robust

and appear to be associated with levels of anxious and avoidant adult attachment styles in both males and females (Mack et al., 2010; Seara-Cardosa et al., 2012; Seara-Cardosa et al., 2013). Various personality features have been found in adults with psychopathy, and research has shown that stress reactivity, aggression, social dominance, alienation, and impulsivity impact an individual's ability to successfully manage strong emotions, to respond empathically in others, and to establish strong friendships or relationships with others in adulthood (Hicks et al., 2004). Positive early parent-child relationships facilitate the development of self-regulation (Mikulincer & Shaver, 2007), while negative parent-child interactions interfere with the development of self-regulation and empathy (see Meloy, 1992); emotion regulation mediates the relationship between attachment and empathy (Panfile & Laible, 2012). Furthermore, there are significant interactions between levels of emotion regulation, empathy, and moral development (Baron-Cohen, 2011) and levels of adult attachment styles (Mack et al., 2010).

Conclusion and Present Study

A limited number of studies have explored the complex interactions between levels of adult attachment styles, emotion regulation, and empathy, with levels of psychopathy in non-criminal, non-clinical populations. When various aspects of these relationships have been explored, typically only one or two factors have been studied together (e.g., attachment styles with empathy; attachment styles with self-regulation; attachment styles with psychopathy; emotion regulation with empathy, etc.), so it is difficult to determine whether specific factors strengthen or buffer these interactions. There is emerging evidence that a mediation model may best explain these relationships, whereby levels of emotional regulation and empathy mediate the direct effects of adult attachment styles and levels of psychopathy. This study tested this

hypothesis using a mediation model with multiple mediators to explore the mechanisms by which these constructs are related in a non-clinical group of college students.

Hypotheses

Hypothesis 1. Levels of anxious or avoidant adult attachment styles as measured by the Experiences in Close Relationships Revised (ECR-R) would predict lower levels of emotion regulation as measured by the Difficulties in Emotion Regulation Scale (DERS). It was hypothesized that insecure levels of attachment (ECR-R) would predict lower levels of overall emotion regulation (DERS) and more specifically, that insecure attachment styles would most strongly predict levels of Impulse (i.e., poor impulse control) and Awareness (i.e., lack of emotional awareness). Further, it was predicted that females and males would differ in terms of levels of insecure attachment and emotion regulation.

Hypothesis 2. Insecure adult attachment styles and deficits in emotion regulation would influence an individual's ability to be empathic. Individuals who report high levels of anxious attachment style would report higher levels of empathy, while individuals who report high levels of avoidant attachment style would report lower levels of empathy (Hypothesis 2a). Furthermore, deficits in emotion regulation were predicted to influence an individual's ability to be empathic (Hypothesis 2b).

Hypothesis 2 (a). It was predicted that individuals with high levels of anxious attachment styles will report higher levels of perspective-taking, empathic concern, and personal distress on a measure of empathy. Additionally, individuals with high levels of avoidant attachment styles were expected to report lower levels of perspective-taking, empathic concern, and personal distress. Individuals with high levels of avoidant attachment styles were expected to be less aware of the feelings of others, thus appearing more removed and less empathic. Males and

females were expected to differ on levels of anxious or avoidant attachment styles and on levels of empathy.

Hypothesis 2 (b). Individuals who report impaired or low levels of emotion regulation will also report lower levels of empathy. Specifically, it was expected that individuals with impaired self-regulation particularly on dimensions of self-awareness, self-control, and acceptance of emotions would have trouble understanding the perspective of others, showing concern for others, and feeling distress in the face of strong emotions. Males and females were expected to vary on the dimensions of self-regulation, which were expected to impact their abilities to be empathic.

Hypothesis 3. There is a significant interaction between levels of adult attachment styles, emotional regulation, empathy and levels of psychopathy; where, individuals with levels of secure attachments will be able to regulate their emotions, will have higher levels of empathy and will report lower levels of psychopathy. Empathy and emotion regulation were explored as potential mediators between attachment style and psychopathy. The direct relationship between levels of adult attachment styles and psychopathy was expected to be mediated by levels of empathy and emotion regulation. See Figure 1 for a depiction of the simple mediation model.

Method

Participants

One hundred and three students were recruited to participate in the present study. Participants were undergraduate college students enrolled in Introductory Psychology Courses and recruited through a computer-based sign up program. Upon completion of the study,

participants received partial course credit. Participants in the study ranged from ages 18 to 26 and were 78.6% female and 21.4% male.

Procedure

Participants were tested in groups of five to fifteen in a medium size room filled with tables and computers. Upon entering the laboratory, the purpose of the study was explained, and participants were asked to sign an informed consent document prior to completing the questionnaires. Any questions about the study were then answered and participants were informed that they were free to leave the study at any time without penalty. Once written informed consent was obtained, participants received a numbered packet with the demographics questionnaire first, followed by assessment questionnaires that were randomly ordered and numbered. The informed consent forms with names of participants were stored separately from the completed questionnaires. See Appendix A for a copy of the informed consent document.

Data was collected using the following self-report measures: (1) a demographics questionnaire to obtain descriptive information; (2) the Experiences in Close Relationships Scale Revised (ECR-R) to assess levels of adult attachment styles; (3) the Difficulties in Emotion Regulation Scale (DERS) to assess emotion regulation; (4) the Interpersonal Reactivity Index (IRI) to assess levels of empathy; and, (5) the Psychopathic Personality Inventory Revised (PPI-R) to assess psychopathic traits. When the measures were completed, the researcher offered to provide study results upon request, however no results were requested. The experiment was estimated to require one hour and one half to complete, but many participants completed the experiment in sixty to seventy-five minutes.

Measures

Demographics Questionnaire. Participants completed a unique, research goal-specific demographics questionnaire that was developed to obtain descriptive information pertaining to age, gender, and ethnicity. See Appendix B for a copy of this questionnaire.

Experiences in Close Relationships Scale Revised (ECR-R; Fraley, Waller & Brennan, 2000). The ECR-R is a 36-item measure, with 18 items measuring adult attachment anxiety and 18 items measuring attachment avoidance. Statements such as “I worry a lot about my relationships” and “I am nervous when partners get too close,” are scored on a 7-point Likert scale, where 1 = Strongly Disagree and 7 = Strongly Agree. Raw scores were averaged to produce a score that captures how the individual feels in intimate relationships, where high scores indicated attachment anxiety and/or avoidance attachment styles. Internal consistencies for the anxiety and avoidance subscales are strong, and reported to be .92 and .93, respectively. See Appendix C for a copy of this measure.

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS assesses aspects of emotion dysregulation using 36-items on a 5-point Likert scale, where 1 = almost never and 5 = almost always. There are six subscales on the DERS, including: Nonaccept (“When I’m upset, I feel guilty for feeling that way.”); Goals (“When I am upset, I have difficulty concentrating.”); Impulse (“When I’m upset, I lose control over my behaviors.”); Aware (“I pay attention to my feelings.”); Strategies (“When I’m upset, I believe I’ll end up feeling very depressed.”); and, Clarity (“I have difficulty making sense of my feelings.”). High scores on these subscales represent impairment in emotion regulation. The DERS test-retest reliabilities are the following: Total (.88), Nonaccept (.69), Goals (.69), Impulse (.57), Aware (.68), Strategies (.80), and Clarity (.84). Total DERS scores have shown high internal consistency ($\alpha = .93$; Gratz & Roemer, 2004). See Appendix D for a copy of this measure.

Interpersonal Reactivity Index (IRI; Davis, 1983). The IRI is a 28-item measure assessing four different aspects of empathy: Perspective Taking (PT), Fantasy (FS), Empathic Concern (EC), and Personal Distress (PD). Each subscale of the IRI consists of questions such as: “I sometimes try to understand my friends better by imagining how things look from their perspective” (PT); “After seeing a play or a movie, I have felt as though I were one of the characters” (FS); “I often have tender, concerned feelings for people less fortunate than me” (EC); and, “I sometimes feel helpless when I am in the middle of a very emotional situation” (PD). Participants were instructed to respond to the statement using a 5-point Likert scale, where 1 = does not describe me well and 5 = describes me very well; higher scores indicating higher levels of empathy on each subscale. All four subscales have internal consistencies ranging from .71 to .77 (Davis, 1983). Internal consistencies for total IRI scores range from .70 to .78 (Davis, 1994 as cited in Beven et al., 2004). See Appendix E for a copy of this measure.

Psychopathic Personality Inventory Revised (PPI-R; Lilienfeld & Andrews, 2005). The PPI-R contains 154 items designed to evaluate levels of psychopathy and is comprised of eight subscales: Machiavellian Egocentricity, Rebellious Nonconformity, Blame Externalization, Carefree Nonplanfulness, Social Influence, Fearlessness, Stress Immunity, and Coldheartedness. Seven of these eight scales comprise two higher order factors, Fearless Dominance and Self-Centered Impulsivity, while the Coldheartedness subscale represents the third factor. Participants answered questions on a 4-point Likert scale, 1 = false, 2 = mostly false, 3 = mostly true, 4 = true. The PPI-R yields a global Psychopathy Index with eight subscale scores. The Psychopathy Index has high internal consistency (.91), and shows moderate to high correlations with Hare’s Psychopathic Checklist Revised (PCL-R; Ross et al., 2008; Donahue et al., 2014).

Results

Descriptive Information

Table 2 provides a summary of descriptive statistics for the study variables. Prior to conducting the regression analyses, data were screened for data entry accuracy, multicollinearity, missing values, and outliers. High levels of correlations among study variables prompted investigation of multicollinearity effects on the multiple regression analyses. An examination of tolerance statistics indicated no violations of multicollinearity (the Variance Inflation Factor did not exceed 10 and tolerance was less than .10 for all variables). Table 3 provides a correlation matrix showing levels of correlations among variables.

Items on the ECR-R and IRI were reverse scored appropriately, while the PPI-R was scored using corresponding software. Raw scores on the DERS were also recoded so that higher scores reflected greater difficulties in emotion regulation, based on guidelines suggested in Gratz and Roemer (2004). In an effort to reduce the effects of extreme outliers on the statistical analyses, raw scores from the DERS were trimmed to fit within three standard deviations of the sample mean. The transformed DERS produced the following raw score ranges: the DERS total scores ranged from 43 to 137, with an average of 77.97; the Impulse subscale scores ranged from 6 to 28, with an average of 11.23 (higher scores indicate greater impulse control difficulties); while, the Aware subscale scores ranged from 6 to 16, with an average of 11.43 (higher scores indicate low levels of emotional awareness).

There were no significant outliers on the other study variables measuring adult attachment styles (ECR-R), aspects of empathy (IRI), and types of psychopathy (PPI-R). Raw scores measuring adult attachment styles fell within the following ranges: anxious attachment (ECR-ANX) scores ranged between 1.39 and 5.56, with an average of 3.06 (higher scores indicate higher levels of attachment-related anxiety); while, avoidant attachment (ECR-AV)

scores ranged between 1.33 and 5.78, with an average of 3.00 (higher scores indicate higher levels of attachment-related avoidance). Subscales measuring empathy on the IRI resulted in the following raw score ranges: perspective-taking (IRI) scores ranged between 9 and 34, with an average of 24.66 (higher scores reflect the ability to take the perspective of others); empathic concern (IRI) scores ranged between 11 and 35, with an average of 28.05 (higher scores indicate the ability to express more sympathy and concern for others); and, personal distress (IRI) scores ranged between 9 and 32, with an average of 18.89 (higher scores indicate higher levels of self-oriented anxiety when experiencing others in distress). Finally scores measuring psychopathy (PPI-R) ranged between 200 and 374 with an average of 285.45 (higher scores indicate higher levels of psychopathic traits). In order to increase the ability to interpret scores across the study variables, raw scores were converted into z-scores.

Hypothesis Testing

Hypothesis 1. It was hypothesized that individuals who reported levels of anxious or avoidant adult attachment styles would report lower levels of emotion regulation. It was hypothesized that insecure levels of attachment (ECR-R) would predict lower levels of overall emotion regulation (DERS) and more specifically, that insecure attachment styles would most strongly predict levels of Impulse (i.e., poor impulse control) and Awareness (i.e., lack of emotional awareness). Further, it was predicted that females and males would differ in terms of levels of insecure attachment and emotion regulation.

Due to an insufficient number of males in the sample, it was not feasible to conduct multiple regression analyses separately for both males and females, so specific gender predictions could not be fully tested as planned. However, the effects of gender were entered into Model 1 of each regression analysis to examine the predictive value of gender on the

dependent variable. Three multiple regression analyses were conducted to test the hypothesis that attachment styles were predictive of overall difficulties in emotional regulation, as well as specific dimensions of emotional regulation including emotional awareness and impulse control.

In the first regression, gender was entered into Model 1 to examine the effects of gender on the dependent variable, and in Model 2 gender, anxious attachment, and avoidant attachment was entered simultaneously to determine the unique contribution of each variable for predicting overall difficulties in emotional regulation. In Model 1, gender did not significantly contribute to the regression analysis ($F(1, 101) = 1.10, p = .63$) and explained less than 1% of the total variance in the model (.001) for predicting difficulties in emotional regulation (see Table 4). In Model 2, anxious attachment (ECR-ANX) contributed significantly to the regression analysis ($F(2, 99) = 14.71, p < .001$) when predicting overall difficulties in emotional regulation, while avoidant attachment (ECR-AV) did not add significantly to the analysis ($\beta = -.04, p = .67$). These findings provide partial support of Hypothesis 1. See Figure 2 for a scatter plot of anxious attachment and DERS scores.

A second regression analysis was conducted to examine whether insecure attachment styles (anxious and/or avoidant) would predict a lack of emotional awareness. Gender was entered into the model first and was not significant in Model 1 ($F(1, 101) = .07, p = .80$) when predicting scores on the awareness subscale of the DERS. In Model 2, anxious attachment had a negative relationship with Aware ($\beta = -.23, p < .05$), while avoidant attachment had a positive relationship ($\beta = .30, p < .05$). Anxious attachment and avoidant attachment styles explained approximately 9% of the variance of the dependent variable measuring emotional awareness. These findings provide partial support of Hypothesis 1.

A third multiple regression analysis was conducted to examine the overall relationship between the predictor variables (attachment styles) and the Impulse subscale of the DERS. Gender was entered into the model first to investigate the effects of gender on the dependent variable, and was not significant in Model 1 ($F(1, 101) = .003, p = .96$) when predicting scores on the impulse control subscale. In Model 2, anxious attachment (ECR-ANX) had a positive effect on Impulse (DERS-IM) scores ($\beta = .38, p < .05$), while avoidant attachment (ECR-AV) had a negative effect when predicting scores on Impulse (DERS-IM) ($\beta = -.21, p < .05$). The two predictor variables accounted for approximately 12% of the variance in the dependent variable measuring the one's impulse control difficulties in emotion regulation. These findings provide partial support of Hypothesis 1.

Hypothesis 2. Insecure adult attachment styles and deficits in emotion regulation influence an individual's ability to be empathic. Individuals who report high levels of anxious and/or avoidant adult attachment styles will report lower levels of empathy (Hypothesis 2a). Furthermore, deficits in emotion regulation will influence an individual's ability to be empathic (Hypothesis 2b).

Hypothesis 2 (a). Individuals with elevated levels of anxious attachment style (ECR-R) will report higher levels of perspective-taking (PT), empathic concern (EC), and personal distress (PD) on subscales of a measure of empathy (IRI). Individuals with elevated levels of avoidant attachment style (ECR-AV) will report lower levels of perspective-taking, empathic concern, and personal distress. Individuals with avoidant attachment styles were expected to be less aware of the feelings of others, and will appear more removed and less empathic.

Three multiple regression analyses were conducted to test the hypothesis that attachment styles were important predictors for understanding different aspects of empathy as measured by

subscales of the Interpersonal Reactivity Index including Perspective Taking (PT), Empathic Concern (EC) and Personal Distress (PD). The predictive relationship between attachment style and PT was examined in the first regression analysis. Gender was not significant in Model 1 ($F(1, 101) = .02, p > .05$) and did not add to the prediction of the dependent variable (PT). In Model 2, gender ($\beta = .03, p > .05$), anxious attachment ($\beta = .09, p > .05$) and avoidant attachment ($\beta = -.16, p > .05$) were not significant when predicting levels of perspective taking (See Table 5). Contrary to expectations, there were no significant relationships between the attachment styles when predicting perspective taking.

In the second regression analysis, the relationship between attachment style and empathic concern was examined. In Model 1, gender was negatively related to empathic concern ($F(1, 101) = 7.14, p < .05$), and explained approximately 6% of the variance in the dependent variable (EC). In Model 2, when entered simultaneously gender, anxious attachment, and avoidant attachment made significant contributions when predicting empathic concern. Gender showed a negative relationship with EC ($\beta = -.22, p < .05$), anxious attachment showed a positive relationship with EC ($\beta = .21, p < .05$) while, avoidant attachment showed a negative relationship when predicting levels of empathic concern ($\beta = -.22, p < .05$). These findings provide partial support of Hypothesis 2 (a).

The third analysis examined the relationship between attachment style and personal distress. In Model 1, gender was negatively related to scores on levels of personal distress ($F(1, 101) = 6.91, p < .05$), and explained approximately 6% of the variance in the dependent variable (PD). In Model 2, anxious attachment was the only significant predictor of PD ($\beta = .37, p < .001$) and explained approximately 18% of the variance in a measure of personal distress.

These findings provide partial support of Hypothesis 2 (a). See Figure 3 for a scatter plot of anxious attachment and personal distress scores.

Hypothesis 2 (b). Individuals with low levels of emotion regulation (DERS) will also report low levels of empathy. Specifically, it was expected that individuals with impaired emotion regulation, particularly on dimensions of self-awareness (Aware), self-control of emotions (Impulse) and acceptance of emotional responses (Nonaccept), will have trouble taking the perspective of others (PT), showing concern for others (EC), and feeling distress (PD) during intense interpersonal situations. Three separate multiple regressions were conducted to examine the relationships between the predictor variables Aware, Impulse, and Nonaccept from the DERS and various facets of empathy (PT, EC and PD).

In the first regression, gender was not significant in Model 1 and contributed to less than 1% of the dependent variable. In Model 2, the Aware subscale of the DERS did not significantly predict levels of Perspective Taking ($\beta = -.12, p > .05$). However, the Impulse subscale of the DERS had a negative effect when predicting scores on PT ($\beta = -.46, p < .001$), while the Nonaccept subscale of the DERS showed a positive impact ($\beta = .28, p < .05$). See Table 6 for a summary of the regression analysis. These findings provide partial support of Hypothesis 2 (b), showing that aspects of emotion regulation were related to perspective taking. See Figure 4 for a scatter plot of DERS Impulse and Perspective Taking scores.

In the second regression, the predictive relationships between Aware, Impulse, and Nonaccept and the dependent variable, Empathic Concern were examined. In this regression, gender was significant in Model 1 ($F(1, 101) = 7.14, p < .05$). In Model 2, the Aware subscale was not significant when predicting EC ($\beta = -.17, p > .05$); however, the Impulse subscale of the DERS negatively affected levels of EC ($\beta = -.23, p < .05$), while the Nonaccept subscale of the

DERS positively predicted levels of empathic concern ($\beta = .26, p < .05$). These findings provide partial support of Hypothesis 2 (b), showing a relationship between aspects of self-regulation and facets of empathy.

Finally, the third regression examined relationships between predictor variables Aware, Impulse, and Nonaccept on the DERS and the dependent variable, Personal Distress (PD) on the IRI. In Model 1, gender was significant ($F(1, 101) = 6.91, p < .001$) and accounted for 6% of the variance for predicting PD. In Model 2, the Aware subscale of the DERS was not significant ($\beta = .11, p > .05$); however both Impulse ($\beta = .25, p < .05$) and Nonaccept ($\beta = .24, p < .05$) subscales significantly predicted levels of personal distress. The overall relationship between the predictor variables was significant and accounted for 23% of the variance in personal distress. These findings provide partial support of Hypothesis 2 (b).

Hypothesis 3. Hypothesis 3 stated that there will be a significant interaction between levels of adult attachment styles, emotional regulation, empathy and levels of psychopathy; where, individuals with secure attachments will be able to regulate their emotions, will have higher levels of empathy and will report lower levels of psychopathy. On the other hand, individuals with high levels of insecure attachment will have less ability to regulate their emotions and show empathy toward others, and report higher levels of psychopathic traits. The direct relationship between adult attachment styles and psychopathy was expected to be mediated by emotional regulation and empathy. Gender was expected to have an effect on the relationships between these variables.

Hypothesis 3 was tested using a parallel mediation model with multiple mediators. A parallel mediation model was chosen over a serial model because both emotion regulation and empathy were expected to mediate the relationship between levels of anxious and avoidant

attachment style and psychopathic traits, and the direction of these relationships was unknown. As reported in the literature, empathy and emotion regulation appear to have a bidirectional relationship (Panfile & Laible, 2012). Furthermore, the relationship of these variables to attachment and psychopathy has not been adequately investigated, so a causal or serial model was not appropriate. The mediation analysis was conducted using PROCESS, a specific computational procedure designed for SPSS; and, utilized 1000 bootstrap samples using a 95% confidence interval for the direct and indirect effects (see Hayes, 2012).

The results of the analyses did not show a significant direct effect between attachment style and psychopathy, and the mediator variables (i.e., emotion regulation, levels of empathy) did not impact this relationship. However, a mediator variable was directly related to the outcome variable, where empathy had a direct significant effect on psychopathy ($c = -.47$, $p < .001$), and accounted for 26% of the variance; and, attachment also had a direct effect on emotion regulation which was previously reported in the regression analysis testing Hypothesis 1. These results did not support the predictions stated in Hypothesis 3, as there was not a significant relationship between attachment style and psychopathy, and emotion regulation and empathy did not mediate this relationship.

Discussion

Past research has examined the relationships between attachment styles, levels of empathy, and emotion regulation and results show that the development of positive relationships between children and caregivers is foundational to one's ability to recognize and respond to others appropriately (Panfile & Labile, 2012; Kim, Sharp & Carbone, 2014). Moreover, studies

have shown that levels of psychopathy, including callous-unemotional, deceitful, and egocentric traits, are related to an individual's inability to control strong negative emotions and to regulate emotional reactions (Donahue, McClure & Moon, 2013). While studies have addressed some of these variables separately and/or together, the complex interactions among attachment styles, levels of empathy, difficulties in emotion regulation, and psychopathy have not been fully explored simultaneously.

The current study was designed to investigate the relationships among insecure attachment styles (i.e., anxious and avoidant), facets of empathy (i.e., perspective taking, empathic concern, and personal distress), deficits in emotion dysregulation (i.e., emotional awareness, impulse control, nonacceptance), and levels of psychopathic traits in a non-clinical, non-criminal population. Additionally, the study sought to analyze the direct and indirect pathways by which insecure attachment predicts the development of psychopathic traits and whether levels of empathy and emotion regulation mediate this relationship. In order to study these relationships more closely, participants were examined on individual levels of attachment style, empathy, emotion regulation, and psychopathic traits using self-report measures. A discussion of individual study hypotheses designed to investigate these relationships is presented next.

Hypothesis 1

Hypothesis 1 predicted that participants with higher levels of insecure attachment would report higher levels of emotion dysregulation and more specifically, that insecure attachment styles would predict difficulties in emotional awareness and poor impulse control; and, that

males and females would show different patterns of attachment style and emotional regulation difficulties. Three separate regression analyses were conducted to fully address this hypothesis.

Results of the first multiple regression analysis provided partial support for Hypothesis 1 regarding attachment styles and overall emotion regulation difficulties (total scores on the DERS). Specifically, high levels of anxious attachment were positively related to poor emotion regulation, while levels of avoidant attachment were not significantly predictive. Thus, individuals who fear rejection and abandonment were more likely to have higher levels of overall difficulties regulating their emotions. Further, gender and attachment style explained 31% of the variance in overall DERS scores, with anxious attachment as the strongest predictor (.57).

The present results are consistent with contemporary research suggesting there is a relationship between anxious and avoidant attachment styles and problems with emotion regulation (Mikulincer & Shaver, 2007, 2012). In their two-dimensional conceptualization, Mikulincer and Shaver found that attachment styles (anxious or avoidant) reflect both a sense of insecurity and the ways in which individuals cope with threats of distressing feelings. Cassidy and Kobak (1988) suggested that individuals develop secondary attachment strategies and may actually hyperactivate or deactivate their attachment strategies as a way to manage or cope with distressing emotions.

There is growing evidence that individuals with insecure attachment styles have trouble regulating their emotions, placing them at risk for a variety of mental health problems and personality disorders. For example, research has shown that individuals with anxious attachment styles, specifically those with Borderline Personality Disorder (BPD), are more likely to have difficulties regulating their emotions due to chronic fears of being abandoned by significant others. Consequently, individuals with BPD exhibit emotional outbursts, feelings of emptiness,

and misperceptions in their interpersonal interactions with others (Levy, 2005). In another study, Maraganska, Gallagher and Miranda (2013) reported that insecure attachment styles may promote ineffective emotion regulation strategies, which then increase risk for depression and generalized anxiety disorders. Research also shows that children who are anxiously attached engage in oppositional and/or defiant behaviors in order to get the attention of caregivers. Thus, attachment difficulties in children appear to be related to poor emotion regulation and are expressed in the form of “acting out” in hopes of receiving attention from caregivers (Mikulincer & Shaver, 2007). The relationship between anxious attachment and emotion regulation difficulties appears robust; and, both children and adults with anxious attachment have trouble regulating emotions which increases the risk for more serious psychological problems.

Results obtained from the second regression analysis also showed that higher levels of anxious attachment were associated with higher levels of emotional awareness while higher levels of avoidant attachment were predictive of lower levels of emotional awareness. These findings suggest that individuals who fear abandonment or rejection are more aware of their own feelings. Individuals who are anxious about their interpersonal relationships are more likely to be aware of their emotions because they feel insecure and fear that they may lose relationships. On the other hand, individuals who avoid closeness and intimacy appear to be less aware of their emotions. Individuals with avoidant attachment may have learned not to trust relationships, and may avoid intense emotions because they are so aversive (Fraley & Shaver, 1997).

The current findings showing a relationship between levels of avoidant attachment and low levels of emotional awareness is consistent with a previous study with children. Children with low levels of emotional awareness were more likely to avoid negative conversations with their mothers (Waters et al., 2010). These authors determined that children who had a better

understanding, or awareness, of their emotions were more likely to engage in open conversation with their caregiver even when they were not pleasant. Although the present study examined adults, the current findings support the notion that, similar to childhood attachment, adult attachment styles are also indicative of emotion regulation abilities.

The relationship between adult attachment styles and emotional awareness appear to function in a manner similar to those described above for children. Adults with avoidant attachment may inhibit their own emotional states or avoid noticing unpleasant emotional reactions as a mechanism for coping with past frustrations and/or rejections (Mikulincer & Shaver, 2003). Attempts to suppress unpleasant emotions may become so habitual for adults with avoidant attachment, that they may have trouble accessing negative emotions (Mikulincer & Orbach, 1995). Conversely adults who score high on anxious attachment may be acutely aware of their own negative emotions and may be preoccupied with distressing internal states. Mikulincer and Shaver (2012) hypothesize that individuals with anxious attachment “often find negative emotions to be congruent with their attachment-system activation. For them ‘emotion regulation’ can mean emotion amplification and exaggeration of worries” (pp. 13-14).

In the last regression analysis exploring Hypothesis 1, levels of anxious attachment were predictive of impulse control difficulties while levels of avoidant attachment were negatively related. This finding suggests that individuals who fear rejection or abandonment are likely to have less control over emotional impulsivity. Mikulincer and Shaver (2012) found that individuals with anxious attachment style are prone to emotional outbursts of anger and impulsive behaviors; while Larose and Bernier (2001) found that anxious attachment style was associated with overly emotional and overly expressive social interactions. Similarly, Brennan, Clark and Shaver (1998) found that individuals who were anxiously attached were more likely to

exhibit outward behaviors toward others such as being “clingy” or jealous, or outwardly expressing anger and fear. These impulse control difficulties seem to stem from the fear of dismissal or negative reactions by others which are characteristic of anxious attachment styles. Conversely, levels of avoidant attachment were negatively related to difficulties in emotional impulsivity, suggesting that individuals who avoid closeness and intimacy in interpersonal relationships are less likely to freely express their emotions. According to past research, individuals with high levels of avoidant attachment are more likely to avoid situations that would increase emotional closeness and are less likely to seek out emotional security from others (Brennan et al., 1998). Thus, these individuals avoid being emotionally intimate, and are less likely to exhibit emotional impulsivity. Mikulincer and Shaver (2003) suggested that individuals with this type of attachment insecurity deny or suppress emotional and attachment needs in an effort to protect them from feeling vulnerable. Based on earlier experiences with significant others, they have formed “working models” that people do not respond to their expressed needs so they inhibit or block these feelings.

While the findings of the present study are consistent with past research, it is important to note the strong positive correlations among anxious attachment, difficulties in emotion regulation, and impulse control difficulties (See Table 3). The overlap between these variables makes it difficult to determine direct relationships between the predictor and outcome variables in Hypothesis 1. Moreover, it is important to acknowledge the measurements used to assess lack of emotional awareness and impulse control difficulties. While anxious and avoidant attachment styles were found to be predictive of lower levels of emotional awareness (Aware) and higher levels of impulse control difficulties (Impulse), which is consistent with previous research, these findings were less robust than total emotion dysregulation scores (DERS).

Hypothesis 2

Hypothesis 2 investigated the relationship among attachment style, emotion regulation and levels of empathy. Specifically, Hypothesis 2 (a) predicted that individuals who reported high levels of anxious attachment style would report higher levels of perspective taking, empathic concern, and personal distress and conversely, that individuals who reported higher levels of avoidant attachment style would report lower levels of the outcome variables. Although specific predictions about how males and females would differ on these variables could not be fully explored due to an insufficient number of males in the sample, gender was examined as a predictor variable. Results of three separate multiple regression analyses indicated that Hypothesis 2 (a) was partially supported by the data.

In the first regression, the data did not support the original hypothesis concerning the relationship between attachment style and perspective taking. Results showed that anxious and avoidant attachment styles did not significantly predict an individual's ability to spontaneously adopt the perspective or viewpoint of others. Also, gender did not significantly add to the regression model. It was predicted that individuals with anxious attachment style, who fear rejection or abandonment, would be more likely to take on the perspective of others as a way of monitoring or scanning the social environment to assess the emotional availability of others. Further, it was predicted that individuals who avoid emotional closeness and intimacy would be less likely to take the perspective of others due to their lack of investment in interpersonal relationships. However, these specific hypotheses were not supported. Although it was not specifically tested in the current study, it is possible that individuals with secure attachment (as evidenced by low scores on both ECR-ANX and ECR-AV) may show higher levels of perspective taking. Previous research has shown that individuals with secure peer and parent

attachments are more likely to have higher global scores of empathy. Specifically, it was determined that individuals with secure peer attachments experienced more positive interactions with others and therefore, have more opportunities to develop perspective-taking skills (Laible, Carlo & Roesch, 2004).

Hypothesis 2 (a) also predicted that individuals with higher levels of anxious attachment would be more likely to show empathic concern for others while individuals with higher levels of avoidant attachment would be less likely to express empathy. Data from the second regression analyses supported this hypothesis, and showed a relationship between anxious attachment style and empathic concern, such that high scores on anxious attachment were also related to high scores on empathy; and, an inverse relationship with avoidant attachment and empathic concern, such that high scores on avoidant attachment were related to low scores of empathy.

These findings suggest that individuals who fear rejection, abandonment, or the loss of an interpersonal relationship (anxious attachment style) are more likely to acknowledge and show concern for the emotions of others. Further, these individuals may be more sympathetic to others. On the other hand, individuals who avoid emotional closeness and intimacy (avoidant attachment style) are less likely to exhibit other-oriented feelings of concern or sympathy. Because individuals with higher levels of avoidant attachment style are more likely to distance themselves from interpersonal relationships, they have less concern for the feelings of those around them. Although males tended to express higher levels of avoidant attachment style and less empathic concern, it would be important to further explore gender effects with a larger sample of males.

Results from the current study are consistent with previous research investigating the relationship between attachment style and aspects of empathy. For example, Burnette, Davis,

Green, Worthington and Bradfield (2009) examined the relationships between avoidant attachment and forgiveness, and found that higher levels of avoidant attachment were related to a lack of kindness and high levels of distrust; which are two characteristics that may be related to a lack of concern or sympathy for others. Further, Burnette et al. (2009) hypothesized that individuals with high levels of avoidant attachment may perceive others as being less worthy of being cared for, so they simply disengage. The reactions of individuals with avoidant attachment styles in the current study may also reflect their “internal working model” of how relationships with others will turn out – they do not expect to experience positive interactions with others so they do not exert emotional concern or empathy.

Despite these positive findings, it is important to note that a significant portion of the variance in empathic concern (88%) was not explained by the study variables. Future research should explore additional independent variables to obtain a more complete understanding of empathic concern. These variables may include personality characteristics, family and relationship values, and prosocial behaviors including altruism, mindfulness and compassion for self and others (see Mikulincer & Shaver, 2007).

Hypothesis 2 (a) predicted that individuals with higher levels of anxious attachment would report higher levels of personal distress, while individuals with higher levels of avoidant attachment would report lower levels of personal distress. Results from the regression analysis partially supported this hypothesis and revealed that individuals with higher levels of anxious attachment were more likely to report higher levels of personal distress, suggesting that people who fear the loss of interpersonal relationships are also more likely to experience self-oriented feelings of anxiety and distress in intense interpersonal situations.

These findings are consistent with those reported by Mikulincer, Shaver, Gillath and Nitzberg (2005). In an experiment examining the relationship between levels of insecure attachment, empathy, and altruism, Mikulincer et al. (2005) found a positive relationship between anxious attachment and personal distress in an experiment where participants were instructed to read a brief story about a student whose parents had been killed in a car accident. Although individuals with insecure attachment styles expressed feelings of compassion and personal distress, these feelings did not elicit a willingness to help or to provide compassionate care for the individual experiencing the emotional suffering. Mikulincer et al. (2005) suggested that while personal distress is a facet of empathy, individuals with anxious attachment style may become overwhelmed by their own feelings of distress. To further explore these interactions, Mikulincer and Shaver (2007) provided empirical support that secure attachment “reduces the need for defensive self-protection and allows the person to activate the care-giving behavioral system, direct attention to others’ distress, take the perspective of a distressed other, and engage in altruistic behavior” (p. 149). Thus, individuals with anxious attachment styles may become overwhelmed by their own personal distress and self-focused worry that they are not able to activate care-giving behaviors.

In the current study, avoidant attachment style did not significantly predict levels of personal distress. These findings were not congruent with previous research showing that individuals with avoidant attachment style also showed lower levels of personal distress. Although Mikulincer et al. (2005) suggest that individuals with avoidant attachment may not be able to deal with the suffering of others, and may adopt defensive behaviors to protect themselves (e.g., distance self from others), this was not supported by these data. Although males in the current study were less likely to report high levels of personal distress, these

findings should be replicated in subsequent studies with larger samples of males. The complex relationships between anxious and avoidant attachment styles and the personal distress facet of empathy are noteworthy and should be explored in more detail.

The last series of research questions explored the relationships between various aspects of emotional regulation and empathy. Hypothesis 2 (b) predicted that individuals with low emotion regulation abilities, specifically on facets of emotional awareness (Aware), impulse control (Impulse), and acceptance of emotions (Nonaccept) would be less likely to exhibit different facets of empathy including perspective taking (PT), empathic concern (EC), and personal distress (PD). Three separate multiple regressions were conducted to test these specific hypotheses.

The first regression analysis showed that Hypothesis 2 (b) was partially supported by the data. Although emotional awareness difficulties (Aware) did not add to the prediction of perspective taking, difficulties with impulse control (Impulse) had a significant negative effect on perspective taking while nonacceptance of emotions (Nonaccept) had a positive effect. These findings suggest that an individual's ability to attend to and acknowledge or understand his or her emotions (Aware) is not predictive of his or her ability to simultaneously adopt the psychological viewpoint of others. Further, these results suggest that individuals with difficulties engaging in goal-directed behaviors in the face of negative emotions (Impulse) are less likely to be able to adopt the perspectives of others. The first regression also revealed an interesting but unexpected pattern whereby individuals who were not able to accept their own distressing emotions (Nonaccept) were better able to understand the perspective of others.

There has not been a great deal of research investigating the same variables as those explored in the current study, particularly with adults. In a study of children, Panfile and Laible

(2012) found that problems with emotion regulation were strongly predictive of low levels of empathy. Emotion regulation difficulties negatively affect interpersonal relationships and make it difficult for individuals to be empathic toward others. These authors also noted that emotion regulation mediated the relationship between attachment and empathy.

A number of theories and studies have also examined the impact of emotion regulation difficulties on empathy, perspective taking and acceptance of distressing emotions. For example, Block-Lerner, Adair, Plumb, Rhatigan and Orsillo (2007) suggested that mindfulness-based strategies that require present-moment awareness may help an individual to regulate their emotions and allow them to respond to others more empathically. Because mindfulness requires a nonjudgmental stance about thoughts and feelings of an individual, it naturally facilitates emotional awareness and decreases an individual's tendency to react impulsively. Other researchers have determined that accepting one's emotions allows an individual to respond appropriately to others instead of being reactive and impulsive. This idea is especially relevant in Acceptance and Commitment Therapy (ACT) (Hayes, Levin, Plumb-Villardaga, Villatte & Pistorello, 2013). Niven et al., (2012) also suggest that individuals regulate their emotions in different ways depending on the situation or context they are in. Moreover, it is possible that the interaction of emotion regulation strategies and perspective taking abilities is situationally dependent for some individuals. Further research exploring the relationships between specific dimensions of emotion regulation and perspective taking is warranted. It may be also beneficial to use a global measure of empathy rather than specific subscales in future studies.

Hypothesis 2 (b) further proposed that individuals with problematic emotional awareness, impulse control difficulties, and nonacceptance of emotions would show less empathic concern, or other-oriented feelings of sympathy toward others. Similar to the first regression, emotional

awareness did not have a significant predictive impact, while difficulties with impulse control were related to low levels of empathy and nonacceptance of negative emotions was positively related to levels of empathic concern. These findings suggest that attending to and acknowledging one's own emotions (Aware) does not have a significant impact on the way in which one is able to feel sympathy and concern for others. The results also suggest that difficulties controlling one's behavior while experiencing negative emotions (Impulse) interfere with the ability to express empathic concern for others. Inspection of items on the Impulse subscale of the DERS (i.e., "When upset, I lose control over my behaviors ... I become out of control") provides insight into this relationship and helps explain why poor impulse control is related to low levels of empathic concern. Additionally, it was found that the more difficulty an individual has accepting his or her own negative emotions, the more likely he or she is to be concerned about the feelings of others. While males tended to show less empathic concern, this needs to be validated in future studies with a larger sample of males.

While these results partially support Hypothesis 2 (b) such that impulse control difficulties are related to lower levels of empathic concern, they are interesting when considering dynamic relationships between these variables and findings of previous research. Eisenberg, Smith and Spinrad (2010) examined effortful control, or the ability to regulate attention and behavior, and its relationship to other aspects of emotion (i.e., empathy, internalizing/externalizing behaviors, and social competence) in children. These authors found that high effortful control facilitated emotion regulation abilities and therefore, enabled children to respond more empathically toward others. Further, the authors pointed out that the ability to control and to attend to emotions and behaviors reduced the risk of developing internalizing or externalizing problems in childhood. These conclusions provide evidence for the importance of

early emotion regulation development and its facilitation of empathic responding (Eisenberg, Smith & Spinrad, 2010).

The specific findings related to the nonacceptance of one's negative emotions provides evidence that the less guilt, shame and embarrassment one has in the face of negative emotions, the more sympathy and concern they will show toward others. This finding is inconsistent with past research related to mindfulness and emotional acceptance. As demonstrated in ACT, when individuals accept negative emotions and respond appropriately to them, they are better-suited to make decisions in line with their values. Moreover, individuals who allow themselves to experience negative emotions are more likely to develop flexible, nonjudgmental strategies when engaging in self-reflection and interacting with others (Hayes, Levin, Plumb-Villardaga, Villatte & Pistorello, 2013). While past research findings on emotional acceptance are inconsistent with the present findings, it is possible that individuals who have difficulty accepting their own negative emotions are more worried or feel anxious about the feelings of others; therefore, they are more sympathetic and attentive when experiencing others in distress. For example, altruistic individuals may be so concerned with helping others that they disregard their own thoughts and emotions. Further examination on the relationships between these variables is warranted.

The last hypothesis stated in 2 (b) predicted that difficulties in emotional awareness, impulse control, and emotional acceptance would be related to lower levels of personal distress, or self-oriented feelings of personal anxiety in the face of intense interpersonal situations. Results of the present study did not support this hypothesis; specifically, emotional awareness was not predictive of personal distress, while impulse control difficulties and nonacceptance of emotions were positively related to levels of personal distress. These findings suggest that an inability to inhibit one's behaviors when experiencing negative emotions and the tendency to

experience negative secondary emotions (e.g., guilt, shame, anger) in response to one's negative emotions are both predictive of experiencing personal, or "self-focused" distress in response to the emotional state of others.

Although specific directional predictions were not supported in the final regression, these findings are partially consistent with previous research cited in the literature. Interestingly, Davis (1983) found that the personal distress facet of empathy was closely related to emotional reactivity, vulnerability, and low self-esteem. Davis (1983) also found that higher scores of personal distress were related to higher scores of interpersonal dysfunction, chronic fearfulness in social relationships, and emotional uncertainty. The current study is consistent with this research such that individuals who had trouble remaining in control when experiencing distressing emotions, or were not able to accept their own negative emotions, were more likely to experience personal distress when handling their emotions and the emotions of others within interpersonal relationships.

It is interesting to note that emotional awareness did not play a more significant role for explaining various facets of empathy. While it is likely that attending to and acknowledging one's emotions is strongly related to an individual's general ability to be empathic, this idea was not congruent with the current findings. Due to a larger number of females than males in the current sample, it is plausible that females exhibit more emotional awareness overall and that results may differ with a larger sample of males. In future research, it also may be beneficial to examine emotional awareness on a more global scale.

Hypothesis 3

A parallel mediation analysis with multiple mediators was used to evaluate the interactions of various study variables. In Hypothesis 3 it was predicted that attachment style

(ECR-R) would have a direct effect on psychopathic traits (PPI-R), which would be mediated by empathy (IRI) and emotion regulation (DERS). The mediational analyses did not reveal a significant direct effect for attachment style and psychopathy, and neither empathy nor emotional regulation had an indirect effect on attachment style and psychopathy. These results are not consistent with previous research, and there are a number of possible explanations for these inconsistencies.

First, it is important to note the dynamic characteristics of psychopathy and how they are measured in the PPI-R. There are eight different constructs of psychopathic traits that make up the global psychopathy measure: Machiavellian Egocentricity, Rebellious Nonconformity, Blame Externalization, Carefree Nonplanfulness, Social Influence, Fearlessness, Stress Immunity, and Coldheartedness. While these eight subscales produce a global psychopathy scale, the study may have yielded different results if the subscales were examined independently. Although the literature provides evidence of a strong relationship between psychopathy and empathy (Blair et al., 2005), the complex nature of this interaction warrants further examination. The next section will address how complexities in the constructs utilized in the current study, including empathy, emotion regulation, and attachment, may have contributed to the results of the mediation analysis.

It is possible that using another measure of empathy or using specific subscales of the Interpersonal Reactivity Index (i.e., PT, EC, or PD) may have yielded different results. Mullins-Nelson, Salekin and Leistico (2006) measured psychopathy and empathy in a college sample and found that perspective taking and empathic concern were significantly negatively related to psychopathy scores. Although individuals who scored higher in psychopathy were less able to engage in perspective taking or show empathic concern, the authors point out that affective

empathy was significantly related to psychopathy while cognitive empathy was not. Mullins-Nelson et al. (2006) also acknowledged the importance of measuring factor scores of psychopathy when investigating emotional deficits in individuals. The idea that there may be “successful psychopaths” is a phenomenon of interest in current research. While the “successful” or “everyday psychopaths” displays characteristics of psychopathy, these individuals function in society by maintaining appropriate societal norms and avoiding institutionalization. Interestingly, these individuals may have appropriate perspective-taking abilities (cognitive empathy), but lack emotional empathy, or may be able to acknowledge and respond appropriately to the emotions of others when necessary.

Furthermore, when investigating the effects of emotion dysregulation on psychopathy in the model, it is important to consider various facets of psychopathy that might explain the current findings. In a study by Donahue, McClure and Moon (2014), DERS scores were not predictive of PPI-R total scores, but did significantly predict factor scores Fearless Dominance (FD) and Self-Centered Impulsivity (SCI) of the PPI-R. Although the strongest relationship was found between the total score of the DERS and the SCI, Donahue et al. (2014) found that all six DERS subscales significantly predicted SCI. These findings indicate that deficits in emotional awareness, managing impulsive behaviors while engaging in goal-directed behavior, and acceptance of emotions are, in fact, related to this factor of psychopathy. Because of the transdiagnostic nature of emotion dysregulation and the complex nature of psychopathy, these associations might be better examined by using individual factor scores (i.e., comparing the predictive power of separate subscales of DERS to subscales of the PPI-R).

Although the current study did not find a direct effect between insecure attachment styles and psychopathic traits, it is important to investigate the nature of the sample. Much of the

contemporary research focuses on insecure attachment styles resulting from experiencing childhood trauma, neglect, or abuse (Lieberman, 1997; Mercer, 2006; Mikulincer & Shaver, 2007). For example in a longitudinal study examining childhood maltreatment and Antisocial Personality Disorder (ASPD) characteristics, Shi et al. (2012) determined that verbal, sexual, and physical abuse were significant predictors of ASPD symptoms. It was further determined that ASPD symptoms were also predicted by maternal withdrawal and child punitive behaviors toward the parent. Males were also more likely to exhibit ASPD symptoms than females (Shi et al., 2012). While the present sample did record the presence of psychological disorders only nine participants reported a previous diagnoses of major depression ($n = 3$), anxiety ($n = 1$), bipolar disorder ($n = 1$), and ADHD/ADD ($n = 4$), and no data was gathered on the prevalence rates of trauma or negative childhood experiences. In future research, it may be beneficial to account for negative childhood experiences and parent-child attachment to determine their effects on psychopathic traits.

Additionally, some studies on insecure attachment and psychopathy have been conducted on clinical and/or incarcerated samples, which are likely to produce different outcomes compared to college student populations. Although Hansen et al. (2011) found that insecure attachment style was predictive of psychopathic traits, other variables including agreeableness, being cooperative, and displaying compassion toward others versus being antagonistic or suspicious, predicted psychopathy over and above attachment style. Further, these authors highlighted the influence of other personality characteristics such as neuroticism and aggression, their interactions with attachment style, and these effects on the outcome variable (Hansen et al., 2011). These findings raise interesting questions about the development of insecure attachment styles and how they are expressed in intimate relationships in adulthood; and how personality

characteristics influence adult attachment and the development of psychopathic traits.

Personality traits were not measured in the current study but may yield important information about how various traits impact the relationship between attachment and psychopathy.

The role of gender may be another important factor that contributed to the mediation analysis. The number of females in the current study was considerably larger than males (81 and 22, respectively). The majority of contemporary research exploring deficits in emotion regulation and empathy has shown that these problems are manifested differently in males and females. For example, females may be more likely to internalize negative emotions and may engage in more self-destructive behaviors; while males may tend to react in more externalizing ways and use aggression or anger. In addition psychopathic traits may be expressed differently in males and females. As previously reviewed, Seara-Cardoso et al. (2013) found that while males and females were similar on an affective-interpersonal dimension of psychopathy, men showed less empathic concern for others in distress when compared to females. Furthermore, Lotze, Ravindran and Myers (2010) found that rates of externalizing behaviors were higher in males than females in a sample of children.

Given the mixed findings pertaining to the effects of gender on emotion regulation, empathy, and psychopathic traits, an examination of these relationships in a sample with an equal number of males and females is recommended in future research. Additionally, characteristics of the data may have influenced the mediation model. For example, levels of anxious and avoidant attachment styles in the population may have not been large enough to produce a significant effect on psychopathic traits. Further, levels of emotion regulation and empathy may not have produced significant effects on the relationship between attachment and psychopathy because of the homogeneity of the population. As previously mentioned, clinical or incarcerated

populations may have provided more extreme levels of anxious and avoidant attachment style, lack of empathy, emotion dysregulation, and psychopathic traits. See Tables 7-10 for a visual representation of the constraints of the data. In summary, inconsistent findings between the current study and previous research may be related to differences in the sample (e.g., gender balance, clinical versus non-clinical population), and the methods used for measuring the study predictors and outcome variable.

Study Limitations

The present study had several limitations that need to be acknowledged. The first is the use of self-report measures and the influence of potential social desirability bias whereby participants may have skewed their answers to be viewed more favorably. Experimental or quasi-experimental designs may provide more of an insight into how participants regulate their emotions or respond empathically (or without empathy) toward others in social situations or within interpersonal relationships. Further, the testing environment required participants to sit near their peers and/or the researcher while completing the measures, which may have influenced their responses.

A second limitation pertains to how the construct of psychopathy is defined, measured and portrayed in the media. While research has shown that psychopathy is prevalent in clinical populations (Hicks et al., 2004) and non-clinical, student populations (Hicklin & Widiger, 2005), “psychopaths” are often portrayed as murderers, rapists, or child abductors in the social media. As such, assessing levels of psychopathy in an undergraduate population presents unique challenges especially when these traits may already be less prevalent. Because most students do not view themselves in such extreme ways, they may be reluctant or less likely to endorse these traits. However, if the present study was replicated with an incarcerated or psychiatric

population, the relationships between study variables may have been more robust, particularly those related to insecure attachment and levels of psychopathy.

A third limitation is that several potential confounding variables that may have influenced the results of this study were not assessed. Specifically, it has been shown that insecure attachment styles often result from childhood experiences of neglect, abuse, and trauma (Mercer, 2006), but these variables were not accounted for in the present study. Childhood experiences especially parent-child relationships (i.e., presence of separation, loss, warmth/dominance) have significant influences on the development of an individual's adult attachment style. Mikulincer and Shaver (2007) also concluded that attachment is a "biologically based behavioral system" however biological influences were not taken into account in the present study. Present-moment awareness, or mindfulness, has also been shown to be related to emotion regulation and empathic responding (Hayes, Levin, Plumb-Villardaga, Villatte & Pistorello, 2013). By inducing a mindfulness condition in an experimental design, researchers may gain more insight into how individuals regulate their emotions and the ways in which they respond to others moment to moment. Further, personality characteristics that have been related to psychopathy in past research including neuroticism, extraversion (Hicklin & Widiger, 2005), and aggression (Donahue et al., 2004), were not assessed.

A more diverse sample drawn from both university and community settings but evenly matched on gender may have increased the power for the predictor variables in this study. A larger heterogeneous sample would more likely produce different results particularly when testing for direct and indirect effects in the mediation model. Further, specific gender differences stated in the hypotheses could not be fully tested due to an insufficient number of males in the present study. While contemporary research has provided evidence that females and males vary

on facets of empathy (White, 2014) and emotion regulation (Seara-Cardoso et al., 2013), these relationships could not be adequately examined. Additionally, a larger sample size would likely provide higher power for the relationships among study variables. With more participants, the data may also be more representative of the population rather than a unique subset of college students. Similarly, as previously stated, the constraints of data ranges should be considered as limitations to the analyses. Because the data set produced less extreme score ranges of anxious and avoidant attachment and psychopathy, it is likely that analyses may have produced different results with more extreme scores representative of significant insecure attachment and psychopathic traits.

Finally, it is important to address the effects of multicollinearity on the multiple regressions used in this study. Facets of the ECR-R, DERS, IRI, and PPI-R were moderately to highly correlated, which indicates an overlap in the measurement tools utilized to assess associated constructs. Thus, reporting the variables as independent predictors should be done with caution. Given the constraints of the data and the cross-sectional design of the study, causal relationships among study variables could not be concluded.

General Conclusions and Future Directions

Despite these limitations, the present study contributes to the literature examining the complex interactions between attachment style, emotion regulation, empathy and psychopathic traits. Results indicated that anxious attachment style is significantly predictive of emotion regulation difficulties, specifically poor impulse control behaviors. These findings may provide clinically relevant information about individuals with chronic fears of losing interpersonal

relationships or being abandoned by others. These fears might make it difficult for them to control their behaviors, particularly in the presence of distressing emotions. These findings may also provide clinical insight into the nature and progression of insecure attachment styles and its effects on relationships in adults. Intense and uncontrolled feelings of depression, anger, and anxiety related to real and/or perceived rejection by others are likely to interfere with the expression of empathy and concern for others; thereby repelling the love and affection they seek. The developmental pathway for these interactions has been explored in children (Levy & Orlans, 2000), and these core mechanisms appear to continue to impact adult romantic relationships (Fraley & Shaver, 2000).

Future studies using experimental designs may provide researchers better insight into the interactions between attachment, empathy and emotion regulation. For example, partner dyads may be used to observe adult attachment styles while engaged in interpersonal interactions. Dyads could be observed after inducing distressing emotions, to observe how individuals regulate strong emotions. It might also be interesting to see if empathy can be manipulated through priming or can be increased using therapeutic strategies. Results from these studies may provide a more accurate representation of how individuals exhibit these constructs in interpersonal and romantic relationships when facing real-life scenarios and may provide insight into the situational employment of these strategies.

Another avenue for future research would be implementing a longitudinal study to investigate the interactions between these variables over time. A longitudinal design would allow for a better understanding of the trajectory of childhood attachment, the development of empathy and emotion regulation, and the emergence of psychopathic personality characteristics in adulthood. Longitudinal studies of this nature are difficult to manage due to problems with

attrition, and they are expensive and time-consuming. A cross-sectional study may be an appropriate alternative to a longitudinal study where various characteristics could be studied at different developmental stages. Retrospective and current data from family, friends, and significant others may also be helpful in obtaining a more accurate picture of how individuals regulate their emotions and express empathy, especially in interpersonal contexts where negative emotions or callous, deceitful behaviors might naturally occur.

Lastly, the data collected in the present study was from students enrolled in a four-year university with relatively homogenous demographic characteristics. Future studies should include participants with more diverse backgrounds including age, education, careers and socioeconomic status to provide more generalizable results about the study results. Further, due to the nature of the variables, it would also be helpful to collect data from a clinical sample where psychopathology may be more prevalent.

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Table 1

Participant Demographics

Variable	<i>n</i>	Percent of Sample
Ethnicity		
Caucasian	67	65.0
African American	28	27.2
Hispanic	4	3.9
Asian	3	2.9
Other	1	1.0
Gender		
Male	22	21.4
Female	81	78.6
Class Year		
Freshman	75	72.8
Sophomore	18	17.5
Junior	9	8.7
Senior	1	1.0
Previous Diagnoses		
None	94	91.3
Major Depression	3	2.9
Anxiety	1	1.0
Bipolar Disorder	1	1.0
ADHD/ADD	4	3.9

Note. Total sample size $N = 103$.

Table 2

Descriptive Statistics for Raw Scores of the Major Study Variables

Variable	Range		α	Potential	Actual
	<i>M</i>	<i>SD</i>			
ECR-R	6.06	1.74	.90	2-10	2.89-9.94
Male	5.84	1.84			
Female	6.11	1.72			
ECR-ANX	3.06	.96	.92	1.00-6.33	1.39-5.56
Male	2.79	.97			
Female	3.12	.95			
ECR-AV	3.00	1.12	.93	1.00-8.33	1.33-5.78
Male	3.04	1.18			
Female	2.99	1.11			
DERS	77.64	19.64	.88	36-144	43-137
Male	74.10	17.84			
Female	79.02	20.08			
DERS-IM	11.23	4.73	.57	6-30	6-25
Male	11.14	4.12			
Female	11.20	4.72			
DERS-AW	11.43	2.27	.68	6-30	6-16
Male	11.32	2.42			
Female	11.46	2.25			
DERS-NA	13.61	6.23	.69	6-30	6-30
Male	13.00	6.00			
Female	13.78	6.32			
IRI	95.54	12.86	.78	28-140	51-124
Male	88.63	10.07			
Female	97.42	12.95			
IRI-PT	26.66	4.79	.77	7-35	9-34
Male	24.77	4.85			
Female	24.63	4.81			
IRI-EC	28.05	4.55	.71	7-35	11-35
Male	25.82	4.46			
Female	28.65	4.41			
IRI-PD	18.89	4.67	.78	7-35	9-32
Male	16.64	3.80			
Female	19.51	4.71			
PPI-R	285.45	37.59	.91	131-524	200-374
Male	316.27	26.40			
Female	277.07	35.87			

Note. ECR-R = Experiences in Close Relationships Scale Revised; ECR-ANX = Experiences in Close Relationships Anxiety Subscale; ECR-AV = Experiences in Close Relationships Avoidance Subscale; DERS= Difficulties in Emotion Regulation Scale; DERS-IM = Difficulties in Emotion Regulation Impulse Subscale; DERS-AW = Difficulties in Emotion Regulation Aware Subscale; DERS-NA = Difficulties in Emotion Regulation Nonaccept Subscale; IRI = Interpersonal Reactivity Index; IRI-PT = Interpersonal Reactivity Index Perspective Taking Subscale; IRI-EC = Interpersonal Reactivity Index Empathic Concern Subscale; IRI-PD = Interpersonal Reactivity Index Personal Distress Subscale; PPI-R = Psychopathic Personality Inventory Revised.

Table 3

Intercorrelation Matrix

Measure	1	2	3	4	5	6	7	8	9	10	11	12
1 ECR	-											
2 ECR ANX	.81**	-										
3 ECR AV	.86**	.40**	-									
4 DERS	.42**	.55**	.19	-								
5 DERS IM	.12	.28**	-.06	.78**	-							
6 DERS AW	.08	-.10	.21*	-.03	-.20*	-						
7 DERS NA	.40**	.52**	.18	.83**	.54**	.02	-					
8 IRI	.11	.27**	-.07	-.23*	.02	-.29**	-.08	-				
9 IRI PT	-.07	.02	-.12	-.13	-.06	-.16	.20	.68**	-			
10 IRI EC	-.00	.16	-.14	.10	-.06	-.16	.18	.77**	.59**	-		
11 IRI PD	.20*	.35**	.02	.47**	.35**	.20	.36**	.59**	.06	.32**	-	
12 PPI-R	-.05	-.16	.07	-.22*	.01	.10	-.25*	-.50**	-.18	-.47**	-.44**	-

Note. All raw scores were converted to z-scores; ECR = Experiences in Close Relationships Scale; ECR ANX = Experiences in Close Relationships Revised Anxiety Scale; ECR-AV = Experiences in Close Relationships Avoidance Scale; DERS = Difficulties in Emotion Regulation Scale; DERS-IM = Impulse subscale; DERS-AW = Awareness subscale; DERS-NA = Nonaccept subscale; IRI = Interpersonal Reactivity Index; IRI-PT = IRI Perspective-Taking subscale; IRI-EC = IRI Empathic Concern subscale; IRI-PD = IRI Personal Distress subscale; PPI-R = Psychopathic Personality Inventory Revised.

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

Table 4

Multiple Regression Analyses for Variables Predicting Emotional Dysregulation, Lack of Emotional Awareness, and Impulse Control Difficulties

	DERS			Aware			Impulse		
	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β
Model 1									
Gender	-.25	.21	-.02	-.10	.24	-.03	-.01	.24	-.01
Model 2									
Gender	-.05	.21	-.02	-.16	.24	-.10	.13	.23	.05
ECR-ANX	.57	.09	.57**	-.23	.11	-.23*	.38	.10	.38*
ECR-AV	-.04	.09	-.04	.30	.11	.30*	-.21	.10	-.21*
Total R ²		.31			.09			.12	
<i>F</i>		14.71			3.14			4.44	

Note. Raw scores were converted to z-scores for regression analysis. ECR-ANX = Experiences in Close Relationships Anxiety Scale score; ECR-AV = Experiences in Close Relationships Avoidance Scale score.

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

Table 5

Multiple Regression Analyses for Gender and Attachment Variables Predicting Perspective Taking, Empathic Concern, and Personal Distress

	PT			EC			PD		
	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β
Model 1									
Gender	.03	.24	.01	-.62	.23	-.26*	-.62	.23	-.25*
Model 2									
Gender	.07	.25	.03	-.54	.24	-.22*	-.48	.23	-.20*
ECR-ANX	.09	.11	.09	.21	.11	.21*	.37	.10	.37**
ECR-AV	-.16	.10	-.16	-.22	.11	-.22*	-.21	.10	-.13
Total R ²		.02			.12			.18	
<i>F</i>		.71			4.48			6.98	

Note. Raw scores were converted to z-scores for regression analysis. ECR-ANX = Experiences in Close Relationships Anxiety Scale score; ECR-AV = Experiences in Close Relationships Avoidance Scale score.

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

Table 6

Multiple Regression Analyses for Emotion Regulation Variables Predicting Perspective Taking, Empathic Concern, and Personal Distress

	PT			EC			PD		
	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β
Model 1									
Gender	.03	.24	.01	-.62	.23	-.26*	-.62	.23	-.25*
Model 2									
Gender	.05	.23	.02	-.61	.27	-.25*	-.58	.22	-.24*
DERS-AW	-.12	.10	-.12	-.17	.10	.08	.11	.10	.11
DERS-IM	-.46	.11	-.46**	-.23	.11	-.23*	.25	.11	.25*
DERS-NA	.28	.11	.28*	.26	.11	.26*	.24	.11	.24*
Total R ²		.16			.15			.23	
<i>F</i>		4.51			4.36			7.44	

Note. Raw scores were converted to z-scores for regression analysis. DERS-AW = DERS Aware subscale score; DERS-IM = DERS Impulse subscale score; DERS-NA = DERS Nonaccept subscale score.

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

Table 7. *Distribution of Anxious and Avoidant Attachment (ECR-R) Scores*

ECR-ANX	<i>n</i>	Cumulative Percent
1.00 – 1.49	1	1.0
1.50 – 1.99	14	14.6
2.00 – 2.49	16	30.1
2.50 – 2.99	21	50.5
3.00 – 3.49	19	68.9
3.50 – 3.99	11	79.6
4.00 – 4.49	11	90.3
4.50 – 4.99	8	98.1
5.00 – 5.49	1	99
5.50 – 5.99	1	100
ECR-AV		
1.00 – 1.49	7	6.8
1.50 – 1.99	17	23.3
2.00 – 2.49	16	38.8
2.50 – 2.99	15	53.4
3.00 – 3.49	16	68.9
3.50 – 3.99	11	79.6
4.00 – 4.49	11	90.3
4.50 – 4.99	4	94.2
5.00 – 5.49	4	98.1
5.50 – 5.99	2	100

Table 8. *Distribution of Emotion Dysregulation (DERS) Scores*

DERS	<i>n</i>	Cumulative Percent
40 – 49	5	4.9
50 – 59	14	18.4
60 – 69	14	32.0
70 – 79	28	59.2
80 – 89	13	71.8
90 – 99	14	85.4
100 – 109	8	93.2
110 – 119	5	98.1
120 – 129	1	99.0
130 – 139	0	99.0
140 – 149	1	100

Table 9. *Distribution of Empathy Scores (IRI)*

IRI	<i>n</i>	Cumulative Percent
50 – 59	2	2.9
60 – 69	3	4.9
70 – 79	4	8.7
80 – 89	16	24.3
90 – 99	39	62.1
100 – 109	26	87.4
110 – 119	11	98.1
120 – 129	2	100

Table 10. *Distribution of Psychopathy (PPI-R) Scores*

PPI-R	<i>n</i>	Cumulative Percent
200 – 224	6	5.8
225 – 249	12	17.5
250 – 274	19	35.9
275 – 299	30	65.0
300 – 324	20	84.5
325 – 349	10	94.2
350 – 374	5	99.0
375 – 399	1	100

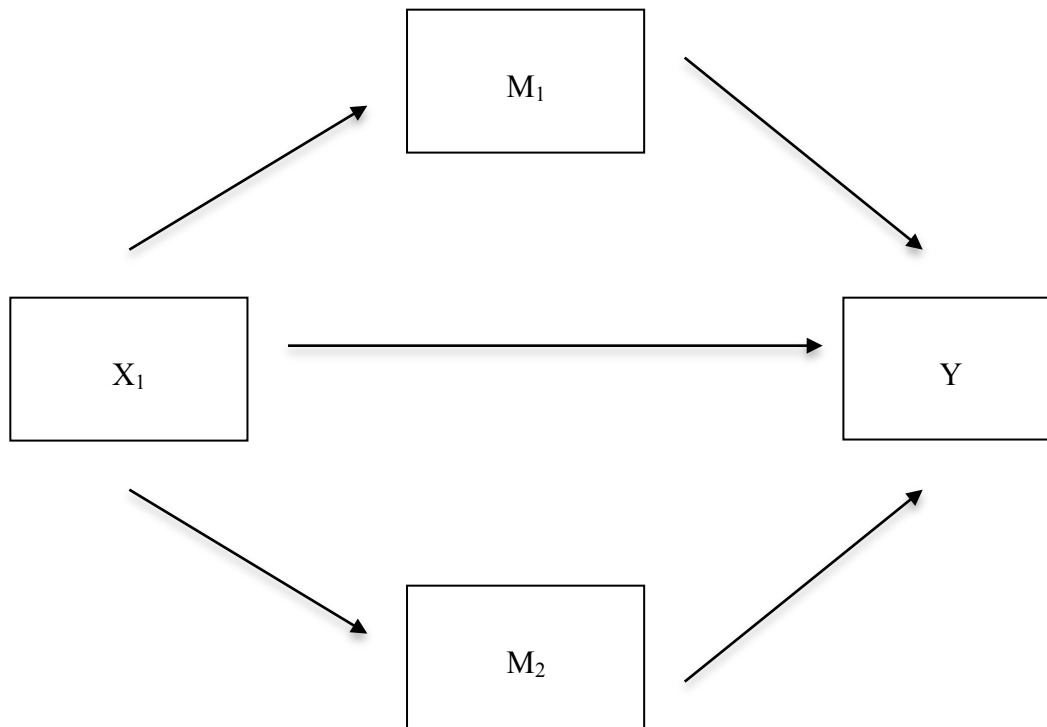


Figure 1. Model of a Multiple Mediation Model: X1 = ECR-R; M1 = DERS; M2 = IRI; Y = PPI-R. This figure was described in Hayes (2012).

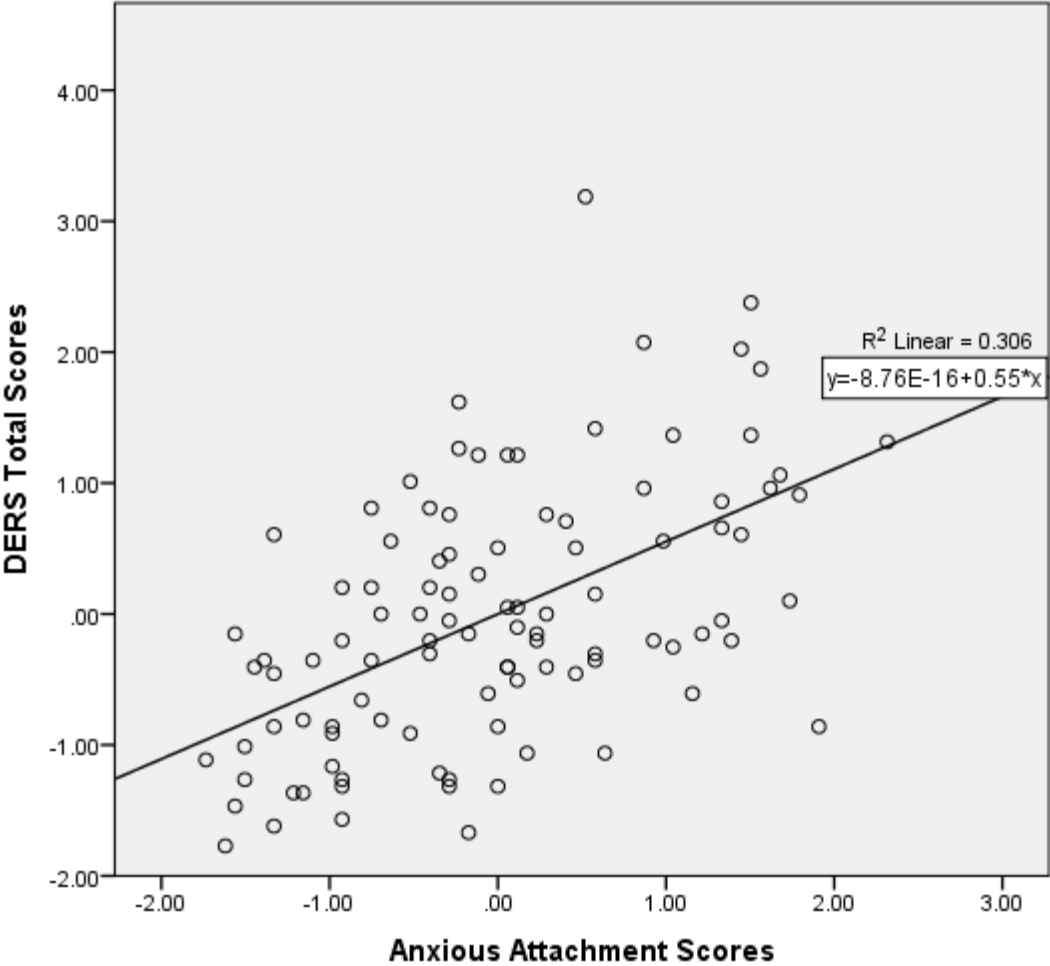


Figure 2. Scatter Plot of Anxious Attachment Scores and DERS scores

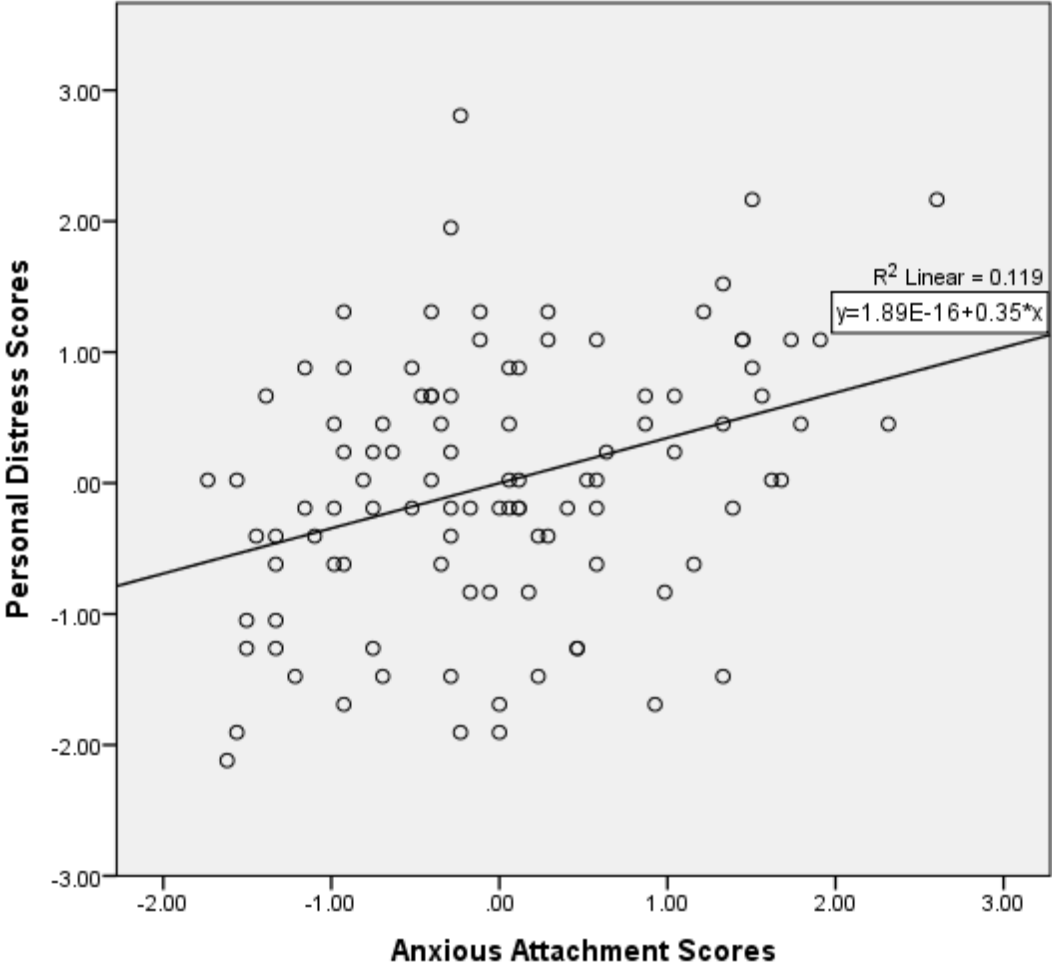


Figure 3. Scatter Plot of Anxious Attachment Scores and Personal Distress Scores

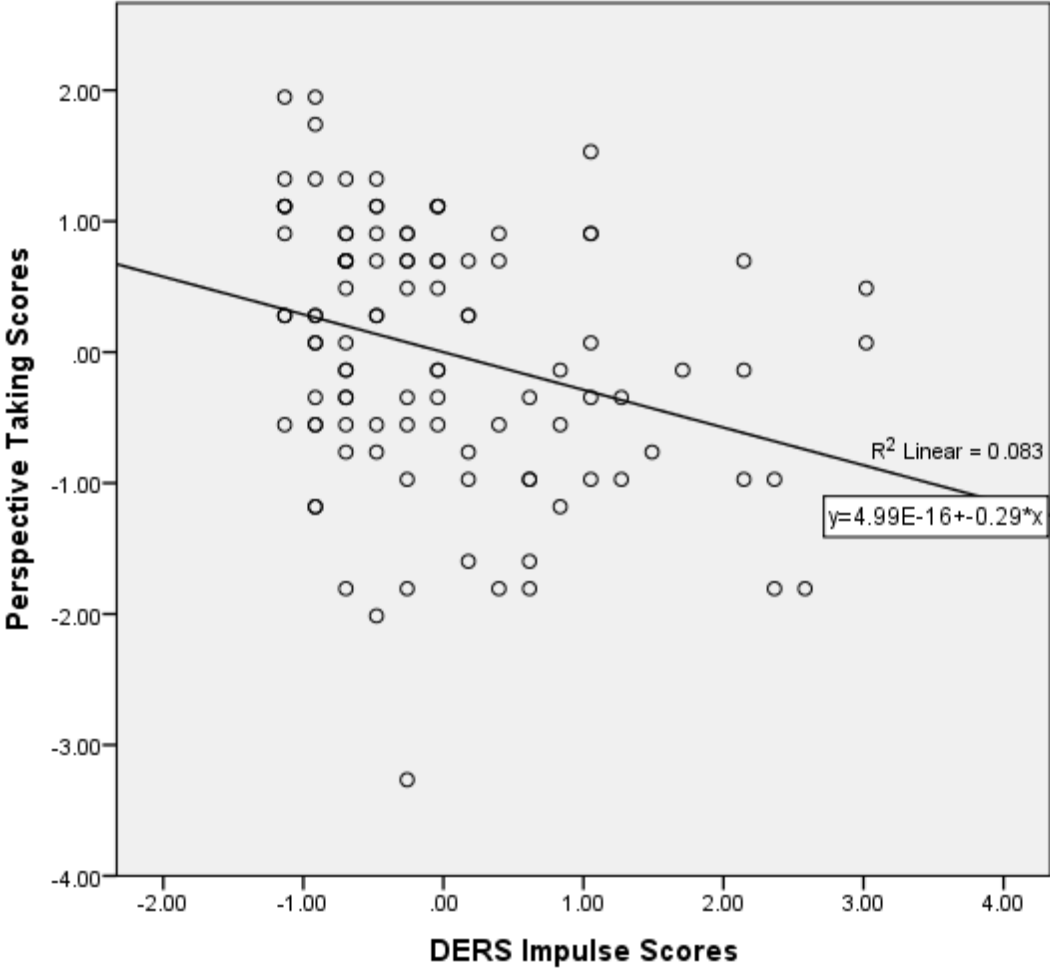


Figure 4. Scatter Plot of DERS Impulse and Perspective Taking Scores

Appendix A

Informed Consent Document

**Consent Form****Adult Attachment Styles and Psychopathic Traits:****A Relationship Mediated by Empathy and Emotion Regulation?**

Chelsea Heim, B.S.

Introduction

You are invited to participate in a research study conducted by Chelsea Heim. I am a graduate student in the Psychology Department of University of South Carolina Aiken. I am conducting a research study as part of the requirements for my Master of Science degree in Applied Clinical Psychology, and I would like to invite you to participate. The purpose of the study is to explore the relationship between difficulties in controlling emotions and relationship satisfaction. This form explains what you will be asked to do if you decide to participate in this study. Please read it carefully and feel free to ask any questions you like before you make a decision about participating.

Eligibility to Participate

Approximately 130 young adults will participate in the current study. You must meet the following criteria: 1) fluent in English; 2) be able to provide informed written or verbal consent; and 3) be 18 years or older.

Description of Study Procedures

If you qualify and agree to participate, you will take part in 1 session with a time length of approximately an hour and a half. At the beginning of the session you will be asked to review the informed consent and sign your name indicating completion of this review. Once the informed consent is signed, you will be given a series of questionnaires to complete. Examples of questions you will be asked on the questionnaires include: "I really get involved with the feelings of the characters in a novel," "I experience my emotions as overwhelming and out of control," and "When I'm upset, I acknowledge my emotions."

After the packet of questionnaires has been completed, you will be given a brief summary of the study and contact information about where you can learn the results of the study. If any of the questions asked of you during this study make you feel uncomfortable, you have the option to not respond.

Statement of Risks

The primary risk of participating in this study is loss of confidentiality. However, your information will only be identifiable by a participation number during the data collection period. Your name and associated participant number will be kept on paper in a locked drawer separate

from the data collected. At the completion point of data collection this paper will be destroyed. Your name on this signed consent form will be kept locked and separate from all other data and will be destroyed after the completion of the study upon approval of successful completion of thesis research and after required period of time as stated by institutional, federal, and state guidelines regarding human subjects research. Access to this information will be limited to Primary Investigator, Chelsea Heim and Research Supervisor, Dr. Anne Ellison.

Benefits of Participation

Taking part in this study is not likely to benefit you personally. However, this research may help us understand the relationships between attachment, empathy, emotion regulation, and psychopathic traits.

Research Credit

Participants will receive 1.5 hours research participation credit if participants are using study participation to fulfill course related research learning points. You will be provided a signed proof of participation for your records and your professors/instructors.

Data Confidentiality and Participant Identification

Your name will not be used in any publication that may result from this study. The USC Office of Research Compliance may request access to this form to ensure procedures designed to protect research participants are being properly followed. In order to maintain privacy and confidentiality, all data will be numerically coded rather than filed by name or other identifying information. As the results of this study may be published and shared, every reasonable effort will be made to remove identifiers from the data that would indicate any connection to you (e.g. the removal of your name, address, etc.). Any information that is obtained in connection with this study that could identify you will remain confidential and will not be released or disclosed without your written consent, except as specifically required by law.

Participation will be confidential. A number will be assigned to each participant at the beginning of the project. This number will be used on project records rather than your name, and no one other than the researchers will be able to link your information with your name. Study data will be stored in locked filing cabinets and protected computer files at the University of South Carolina Aiken. There is always a slight risk confidentiality can be broken but we will do everything to ensure this does not occur.

Voluntary Withdrawal

Participation in this study is voluntary. You are free to withdraw your consent and discontinue participation in the study at any time throughout the study without negative consequences to your relationship with the University of South Carolina. In the event that you do withdraw from this study, the information you have already provided will be kept in a confidential manner.

Contact Persons

Faculty and researchers of the University of South Carolina Aiken are conducting this research. For more information concerning this research, you may contact:

Dr. Anne Ellison
 Department of Psychology
 Phone Number (Office): 803-641-3219
 Email Address: AnneE@usca.edu

Chelsea Heim
 Department of Psychology
 Phone Number (Cell) 330-541-3533
 Email Address: cheim@email.usca.edu

If you have any questions about your rights as a research subject contact, Lisa Marie Johnson, IRB Manager, Office of Research Compliance, University of South Carolina, 901 Sumter Street, Byrnes 515, Columbia, SC 29208, Phone: (803) 777-7095 or LisaJ@mailbox.sc.edu. The Office of Research Compliance is an administrative office that supports the USC Institutional Review Board. The Institutional Review Board (IRB) consists of representatives from a variety of scientific disciplines, non-scientists, and community members for the primary purpose of protecting the rights and welfare of human subjects enrolled in research studies.

Participant Signatures

I have read this informed consent form and have been given a chance to ask questions about this research study. These questions have been answered to my satisfaction. I agree to participate in this study. I have received (or will receive) a copy of this form for my own records.

Participant _____ Date ____/____/____

Investigator _____ Date ____/____/____

Appendix B

Demographics Questionnaire

Please answer the following questions about yourself.

1. Gender (check one): Male _____ Female _____

2. Class Standing (circle one): Freshman Sophomore Junior Senior

3. Age _____

4. Which of the following best describes your racial background (check one)?

African-American _____ Caucasian _____ Asian _____

Native American _____ Hispanic _____ Other _____, describe: _____

5. Have you ever been diagnosed with a psychological disorder (circle one)? Yes No

If yes, what was it? _____

Appendix C

Experiences in Close Relationships Revised. (Fraley, Waller, & Brennan, 2000).

The statements below concern how you feel in emotionally intimate relationships. We are interested in how you *generally* experience relationships, not just in what is happening in a current relationship. Respond to each statement by circling a number to indicate how much you agree or disagree with the statement

1 2 3 4 5 6 7

Strongly Disagree

Strongly Agree

- ___ 1. I'm afraid that I will lose my partner's love.
- ___ 2. I often worry that my partner will not want to stay with me.
- ___ 3. I often worry that my partner doesn't really love me.
- ___ 4. I worry that romantic partners won't care about me as much as I care about them.
- ___ 5. I often wish that my partner's feelings for me were as strong as my feelings for him or her.
- ___ 6. I worry a lot about my relationships.
- ___ 7. When my partner is out of sight, I worry that he or she might become interested in someone else.
- ___ 8. When I show my feelings for romantic partners, I'm afraid they will not feel the same about me.
- ___ 9. I rarely worry about my partner leaving me.
- ___ 10. My romantic partner makes me doubt myself.
- ___ 11. I do not often worry about being abandoned.
- ___ 12. I find that my partner(s) don't want to get as close as I would like.
- ___ 13. Sometimes romantic partners change their feelings about me for no apparent reason.
- ___ 14. My desire to be very close sometimes scares people away.
- ___ 15. I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am.

- ___ 16. It makes me mad that I don't get the affection and support I need from my partner.
- ___ 17. I worry that I won't measure up to other people.
- ___ 18. My partner only seems to notice me when I'm angry.
- ___ 19. I prefer not to show a partner how I feel deep down.
- ___ 20. I feel comfortable sharing my private thoughts and feelings with my partner.
- ___ 21. I find it difficult to allow myself to depend on romantic partners.
- ___ 22. I am very comfortable being close to romantic partners.
- ___ 23. I don't feel comfortable opening up to romantic partners.
- ___ 24. I prefer not to be too close to romantic partners.
- ___ 25. I get uncomfortable when a romantic partner wants to be very close.
- ___ 26. I find it relatively easy to get close to my partner.
- ___ 27. It's not difficult for me to get close to my partner.
- ___ 28. I usually discuss my problems and concerns with my partner.
- ___ 29. It helps to turn to my romantic partner in times of need.
- ___ 30. I tell my partner just about everything.
- ___ 31. I talk things over with my partner.
- ___ 32. I am nervous when partners get too close to me.
- ___ 33. I feel comfortable depending on romantic partners.
- ___ 34. I find it easy to depend on romantic partners.
- ___ 35. It's easy for me to be affectionate with my partner.
- ___ 36. My partner really understands me and my needs.

Appendix D

Difficulties in Emotion Regulation Scale. (Gratz & Roemer, 2004).

Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item:

1	2	3	4	5
almost never	sometimes	about half the time	most of the time	almost always

- _____ 1. I am clear about my feelings.
- _____ 2. I pay attention to how I feel.
- _____ 3. I experience my emotions as overwhelming and out of control.
- _____ 4. I have no idea how I am feeling.
- _____ 5. I have difficulty making sense out of my feelings.
- _____ 6. I am attentive to my feelings.
- _____ 7. I know exactly how I am feeling.
- _____ 8. I care about what I am feeling.
- _____ 9. I am confused about how I feel.
- _____ 10. When I'm upset, I acknowledge my emotions.
- _____ 11. When I'm upset, I become angry with myself for feeling that way.
- _____ 12. When I'm upset, I become embarrassed for feeling that way.
- _____ 13. When I'm upset, I have difficulty getting work done.
- _____ 14. When I'm upset, I become out of control.
- _____ 15. When I'm upset, I believe that I will remain that way for a long time.
- _____ 16. When I'm upset, I believe that I'll end up feeling very depressed.
- _____ 17. When I'm upset, I believe that my feelings are valid and important.
- _____ 18. When I'm upset, I have difficulty focusing on other things.
- _____ 19. When I'm upset, I feel out of control.
- _____ 20. When I'm upset, I can still get things done.
- _____ 21. When I'm upset, I feel ashamed with myself for feeling that way.
- _____ 22. When I'm upset, I know that I can find a way to eventually feel better.
- _____ 23. When I'm upset, I feel like I am weak.

- _____ 24. When I'm upset, I feel like I can remain in control of my behaviors.
- _____ 25. When I'm upset, I feel guilty for feeling that way.
- _____ 26. When I'm upset, I have difficulty concentrating.
- _____ 27. When I'm upset, I have difficulty controlling my behaviors.
- _____ 28. When I'm upset, I believe that there is nothing I can do to make myself feel better.
- _____ 29. When I'm upset, I become irritated with myself for feeling that way.
- _____ 30. When I'm upset, I start to feel very bad about myself.
- _____ 31. When I'm upset, I believe that wallowing in it is all I can do.
- _____ 32. When I'm upset, I lose control over my behaviors.
- _____ 33. When I'm upset, I have difficulty thinking about anything else.
- _____ 34. When I'm upset, I take time to figure out what I'm really feeling.
- _____ 35. When I'm upset, it takes me a long time to feel better.
- _____ 36. When I'm upset, my emotions feel overwhelming.

Appendix E

Interpersonal Reactivity Index. (Davis, 1980).

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate number on the scale below.

1 2 3 4 5

DOES NOT DESCRIBE ME WELL

DESCRIBES ME VERY WELL

___ 1. I daydream and fantasize, with some regularity, about things that might happen to me.

___ 2. I often have tender, concerned feelings for people less fortunate than me.

___ 3. I sometimes find it difficult to see things from the "other guy's" point of view.

___ 4. Sometimes I don't feel very sorry for other people when they are having problems.

___ 5. I really get involved with the feelings of the characters in a novel.

___ 6. In emergency situations, I feel apprehensive and ill-at-ease.

___ 7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.

___ 8. I try to look at everybody's side of a disagreement before I make a decision.

___ 9. When I see someone being taken advantage of, I feel kind of protective towards them.

___ 10. I sometimes feel helpless when I am in the middle of a very emotional situation.

___ 11. I sometimes try to understand my friends better by imagining how things look from their perspective.

___ 12. Becoming extremely involved in a good book or movie is somewhat rare for me.

___ 13. When I see someone get hurt, I tend to remain calm.

___ 14. Other people's misfortunes do not usually disturb me a great deal.

___ 15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.

___ 16. After seeing a play or movie, I have felt as though I were one of the characters.

___ 17. Being in a tense emotional situation scares me.

___ 18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.

___ 19. I am usually pretty effective in dealing with emergencies.

___ 20. I am often quite touched by things that I see happen.

___ 21. I believe that there are two sides to every question and try to look at them both.

___ 22. I would describe myself as a pretty soft-hearted person.

___ 23. When I watch a good movie, I can very easily put myself in the place of a leading character.

___ 24. I tend to lose control during emergencies.

___ 25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

___ 26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.

___ 27. When I see someone who badly needs help in an emergency, I go to pieces.

___ 28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.