

ATTACHMENT INSECURITY, EMOTION REGULATION DIFFICULTIES, AND
MINDFULNESS DEFICITS IN PERSONALITY PATHOLOGY

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A growing body of research has documented associations between personality disorders (PDs) and attachment disturbance, and yet, attachment disturbance does not necessarily guarantee the development of PD pathology. Thus, understanding the mechanisms mediating the relationship between attachment disturbance and PD pathology remains an open area of research. One area with sound theoretical and empirical evidence has shown that attachment disturbances are associated with emotion regulation difficulties, as well as maladaptive interpersonal patterns of behavior. However, the research conducted thus far has predominately focused on borderline personality disorder, at the exclusion of other PD domains, and also has not broadened the scope of research to include other relevant psychological processes that may clarify how personality pathology and attachment disturbance are interrelated. Using a large independent sample of college ($n = 946$) and community-based individuals ($n = 271$), the current study aimed to (1) examine how the Personality Inventory for DSM-5 (PID-5) PD trait domains would be differentially associated with maladaptive attachment processes and emotion regulation problems, and (2) explore whether deficits in mindfulness and emotion regulation mediated the relationship between disturbed attachment and PD trait domains. Findings suggested that the PID-5 PD trait domains have general and specific relations to attachment insecurity, impairments in emotion regulation, and decreased mindfulness. Overall, the current study suggests that improving emotion regulation skills and increasing dispositional mindfulness may limit the expression of pathological personality traits. Implications of these findings and directions for future research are discussed.

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For my parents, who have been there for me since day one. The unwavering support you have given me, the personal sacrifices you have made to help me accomplish my goals, and the wisdom you have bestowed upon me have provided me an intangible gift that I cannot begin to describe and cannot ever repay.

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CHAPTER 1

INTRODUCTION

Although research has repeatedly shown associations between Personality Disorders (PDs) and attachment disturbance, problematic attachment does not guarantee the development of PD pathology (Bartholomew, Kwong, & Hart, 2001). Accordingly, researchers have begun investigating associated psychological processes that may help account for the links between attachment disturbance and PD pathology. For instance, the volatile relationship patterns that often epitomize Borderline Personality Disorder (BPD) pathology have empirically (e.g., see Agrawal, Gunderson, Holmes, & Lyons-Ruth, 2004 for a review of BPD-attachment literature) important ties to themes of interpersonal abandonment, fears of interpersonal rejection, and emotional dysregulation that characterize preoccupied attachment style (Agrawal et al., 2004). Similarly, the detached and callous attitude of individuals with prominent antisocial personality disorder traits closely resemble aspects of dismissive attachment styles, in which negative emotion is avoided to prevent feelings of vulnerability, shame, or other painful negative emotions (Brennan, Clark, & Shaver, 1998a). While various literature has established the association of insecure attachment styles to some personality disorders, the preexisting research has (a) predominately focused on borderline personality disorder, and (b), has not broadened the scope of research to explore other relevant psychological processes that may clarify how personality pathology and attachment disturbance are interrelated.

Accordingly, the current study aims to (1) explore how pathological personality traits are differentially associated with maladaptive attachment processes, (2) understand how emotion regulation problems are associated with pathological personality traits, and (3) explore whether deficits in mindfulness and emotion regulation mediate the relationship between insecure

attachment processes and personality disorders. Although cross-sectional in nature, the current study aims to provide tentative evidence suggesting that mindfulness and adaptive emotion regulation may serve as protective factors against the development of personality pathology.

Attachment Theory

Overview of Attachment Theory

Attachment theory is a biopsychosocial theory geared towards explaining how human relationships are formed and maintained over an individual's lifetime (Bowlby, 1969, 1982). Bowlby's ethological research proposed that infants develop attachment behaviors, such as crying or looking for caregivers during times of distress, as ways of ensuring proximity to and nurturance from caregivers (i.e., "attachment figures"). Fundamentally, attachment theory proposes that infants are innately driven to form emotional and physical bonds with individuals who are their primary caregivers, such as parents.

As individuals age, the combination of evolutionary and biological predispositions interact with the child's social environment to form the basis for the Attachment Behavioral System (ABS; Bowlby 1969, 1982), an evolutionary-based motivational system responsible for goal-directed attachment behaviors aimed at eliciting comfort, security, and safety from caregivers (Mikulincer, Gillath, & Shaver, 2002). According to attachment theory, the ABS becomes activated in the presence of impending cues that signify attachment figure loss, separation, or other ruptures in the level of intimacy and availability of caregivers (Bowlby, 1973). Moreover, attachment theory states that the ABS shapes the child's expectations of attachment figures' responsiveness during times of distress and the development of the child's self-concept (Bowlby, 1988). For instance, if a crying child is never met with comfort, research indicates they are likely to develop beliefs that their feelings are not worthy of attention or that

others are unreliable (Pietromonaco & Barrett, 2000). Ultimately, caregivers' reactions to the child upon the activation of this system greatly influence the child's expectations about how others will react in similar future situations while simultaneously communicating information regarding the child's worth.

Internal Working Models and Attachment Styles

Through repeated early childhood interactions with caregivers, individuals develop Internal Working Models (IWMs), which are stable affective-cognitive frameworks comprised of attitudes, beliefs, and expectations about others' availability during times of distress, along with views about self-worth, value, and lovability (Bowlby, 1969; Bowlby, 1973; Lopez, Melendez, Sauer, Berger, & Wyssman, 1998). These mental representations of expected attachment figure responses ("working models of others") and beliefs about one's efficacy and personal value ("working model of self") greatly influence relational interactions by guiding behavior, cognitions, and emotions (Bowlby, 1969). Moreover, stressful situations that activate the ABS draw on IWMs and subsequently affect the perpetuation of the individual's previously held beliefs about self and other.

Attachment theory also holds that IWM's are largely stable because they are somewhat self-fulfilling. That is, a child with strong negative expectations of others will likely act in an unpleasant manner towards others, ultimately driving others away and further reinforcing the notion that others are unavailable or otherwise rejecting (Douglas, Atwell, & Hillebrand, 1988). Therefore, the progression of IWMs through notable interactions with attachment figures are responsible for the development of an "attachment style," which can be defined as, "*stable, global differences in (1) tendencies to seek and experience comfort and emotional support from*

persons with whom one has an attachment bond and (2) presumptions about the responsiveness of attachment figures to bids for comfort and support (Rholes & Simpson, 2004, pg. 4).”

The concept of an attachment style was derived from Mary Ainsworth’s Strange Situation Procedure that distinguished secure from insecure infants (Ainsworth, Blehar, Waters, & Wall, 1978). The procedure involved a mother and her infant playing in an experimental room for 20 minutes, after which a stranger entered the room. After this stranger entered, the mother subsequently left the room and the child’s behavior was observed. Likewise, Ainsworth and colleagues also took note of how the infant reacted upon the mother’s return. Through these interactions, Ainsworth observed various patterns in how infants acted when their mother left the room (e.g., distressed vs. disinterested), and how they acted upon their mother’s return (e.g., angry, joyful).

According to Ainsworth, infants with a “secure” attachment style became distressed when their mothers left the room, but were soothed upon their mothers’ return. In contrast, infants with an “insecure” attachment style coped with their mother’s departure and subsequent return in vastly different manners. That is, “anxious-ambivalent” infants were typified by their tendency to become upset when their mothers left the room, but they remained angry and upset even after seeking and receiving comfort from their mothers upon her return. Likewise, “avoidant” infants were not distressed upon their mother’s departure, nor were they interested in attaining comfort upon their mother’s return. IWMs and attachment styles originate during infancy and develop throughout early childhood and adulthood (Ainsworth, 1989), ultimately laying the foundation for future relationships with others and the development of identity as the target of establishing relational intimacy shifts from parental relationships to peer and romantic relationships. That is, early childhood relationships with attachment figures likely serve as

relational prototypes that guide interpersonal expectations for future, novel relationships (Wallin, 2007).

From Infancy to Adulthood: Continuity in Attachment Processes

Although attachment theory's initial influence originated from experiments aimed to explain parental bonding and infant behavior, the theory has since been applied to the study of relationships in adulthood. Specifically, Bowlby acknowledged that while attachment behaviors are most easily observed in infancy, the attachment behavioral system remains active throughout one's lifespan and becomes important in the development of adult peer and romantic relationships (Bowlby, 1988). Accordingly, a great deal of research has focused on expanding Bowlby and Ainsworth's work to demonstrate the general continuity of attachment processes from infancy and childhood into adulthood (Hazan and Shaver, 1987; Morris, 1982; Pietromonaco, & Barrett, 2000).

Various longitudinal studies have found attachment styles are relatively stable throughout one's lifespan, and that childhood attachment patterns present in childhood are predictive of attachment behaviors seen in adult romantic relationships (Brumbaugh & Fraley, 2006; Pascuzzo, Cyr, & Moss, 2013; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). For instance, certain childhood attachment behaviors that are strong indicators of attachment style, such as seeking proximity to attachment figures when upset, tend to carry over to relationships in adulthood (Mikulincer & Shaver, 2007). Likewise, longitudinal studies have demonstrated insecure attachment styles in childhood are associated with maladaptive interpersonal behaviors in adulthood when compared to individuals who had a secure attachment style in childhood (Main & Solomon, 1990).

Longitudinal research suggests that IWMs have strong patterns of stability over time (e.g., Hazan & Shaver, 1987; Klohnen & John, 1998; Shaver, Collins, & Clark, 1996). For example, Hazan and Shaver (1987) found carryover of beliefs about love from childhood to adulthood, signifying IWM continuity across the lifespan. Despite this documented continuity, it is important to emphasize the word “working” in the phrase “Internal Working Model,” in that the notion of an IWM insinuates they are changeable depending upon various factors (Bowlby, 1980). These factors can include the individual’s satisfaction with interpersonal outcomes directly linked to their IWMs, environmental events such as trauma (Waters et al., 2000), or new relationships that allow the re-working of IWMs, such as the therapeutic relationship (e.g., Buhrmester & Furman, 1986).

Although many attachment-related behaviors show continuity over the lifespan, some research has indicated that various life events are capable of changing the level of attachment security an individual possesses. For instance, some distressing life events (e.g., divorce, physical or sexual abuse) have been linked to changes in attachment style classification (e.g., Waters et al., 2000). Nonetheless, many longitudinal studies have supported the claim that elements of childhood attachment styles are likely to reappear in adult romantic relationships; attachment styles derived from child-parent relationships are transferred to peer relationships in early childhood, adolescence, and ultimately in adult romantic relationships (Simpson, Collins, Tran, & Hayden, 2007; Seiffge-Krenke, 2003; Weiss, 1991).

Despite the striking resemblance between childhood attachment relationships and adult romantic relationships, Hazan & Shaver (1987) argue adult romantic relationships differ from child-parent relationships in some respects. For instance, adult romantic relationships not only differ with respect to the presence of reciprocal attachment roles (i.e., being both the caregiver

and recipient of care at various times), but they also involve relational components of sexuality that are not typically present in a healthy parent-child relationship. Nonetheless, both children and adults ultimately seek out attachment figures during times of distress to ameliorate negative affect and reestablish a sense of security (Rholes & Simpson, 1994). This finding serves as an important reminder that attachment strategies and subsequent relational patterns originating from childhood are reenacted in various relationships in adulthood.

Attachment in Adulthood

Despite attachment theory's emphasis on infant and child attachment processes, Hazan and Zeifman (1999) note Bowlby's intention went far beyond studying infant-caregiver relationships. That is, Bowlby argued that attachment relationships are formed and constantly changing from "the cradle to the grave (Bowlby, 1979, p. 129)." As a result, two emerging lines of adult attachment research have emerged to address the continuity of childhood attachment processes into adulthood. The first line of research was propagated by the development of the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985), a semi-structured interview designed to assess how meaningful childhood attachment experiences affected the development of adult relationships and personality characteristics. This structured interview uses an attachment classification system similar to the childhood attachment literature, ultimately categorizing individuals into secure/autonomous, insecure/dismissing, or preoccupied.

Although the AAI yields a great deal of insight into how an individual's childhood attachment relationships are represented in adult IWM's, the amount of required in-depth training and its time-consuming administration make it an unfeasible approach to assessing attachment in many research settings. Likewise, other evidence suggests that attachment phenomenon are better represented through dimensional approaches (i.e., attachment anxiety and

avoidance), and that attachment disturbance is a continuously distributed, rather than categorical, construct (Brennan, Clark, & Shaver, 1998b).

The second approach to adult attachment research was developed by Hazan and Shaver (1987), in which they investigated the association between childhood attachment patterns and love in adult romantic relationships. Hazan and Shaver's investigation was exploratory, in that their adult attachment style classification system was necessarily built off the existing classification system derived from infant and childhood research. Similar to Ainsworth et al. (1978), Hazan and Shaver classified adults as either secure, anxious-ambivalent, or avoidant. Secure individuals were characterized by their comfort with interpersonal intimacy and closeness, and generally expressed positive attitudes towards others. Anxious-ambivalent adults were typified by excessive emotional dependency and abandonment fears. Lastly, Hazan and Shaver found avoidant adults were emotionally distant from their partners and reluctant to depend upon their partners.

Building off Hazan and Shaver's romantic relationship findings, Bartholomew (1990) re-emphasized Bowlby's centrality of IWM's on attachment styles by proposing that both internal working models of the self and others can be dichotomized into views that are positive or negative in valence. Individuals who hold a positive model of the self typically see themselves as worthy, lovable, and deserving of comfort during distress, while those who possess primarily negative models of the self typically possess beliefs that they are undeserving of love, care, or comfort. Individuals with positive models of others hold the belief that others are responsive, available, and trustworthy, while negative models of others possess a view that others are rejecting, cold, and distant. The various combination of these two dimensions, one being object of the mental model and the other being the positive or negative view toward that model, led

Bartholomew and Horowitz (1991) to operationalize their four-prototype model of attachment style classification (see Figure 1 for a representation of this model).

According to Bartholomew and Horowitz (1991) and other contemporary attachment researchers, securely attached adults possess positive models of self and others. Consequently, these adults are capable and interested in becoming emotionally close to others, comfortable relying upon others during times of distress, and possess advanced emotion regulation skills (Bartholomew & Horowitz 1991; Mikulincer & Shaver, 2007).

As seen in Figure 1, Bartholomew renamed Ainsworth's "anxious-ambivalent" group as "preoccupied." Individuals with this attachment styles possess a positive model of others, in that they find others trustworthy and look to others for comfort when distress. Likewise, those with preoccupied tendencies possess a negative view of self, in which they often desire extreme intimacy, fear rejection, and have a tendency to become overly dependent (Bartholomew, 1990; Feeney, 2008). Although multiple child-caregiver dynamics can play a significant role in the development of a preoccupied attachment style, one notable dynamic is that of inconsistently-attuned parents, wherein the caregiver's responsiveness and emotional availability is largely inconsistent (Wallin, 2007). In adult relationships, those with preoccupied attachment styles are often uncertain whether they can depend upon and trust others to be available during distress due to their history with inconsistent emotional availability of others, and thus they subsequently remain vigilant in their attempts to attain proximity. Research indicates that adults with preoccupied attachment styles are likely to become overly dependent on their significant other in a way that may ultimately facilitate feelings of anger or resentment (Main & Goldwyn, 1998).

Adults with a dismissive attachment style hold a positive view of self and negative view of others (Bartholomew and Horowitz, 1991). Dismissive adults deny attachment needs, have

difficulty trusting and depending upon others, and are likely to devalue others and downplay emotional distress during times of need (Bartholomew & Horowitz 1991; Mikulincer & Shaver, 2007). Experimental research has also demonstrated that when met with feelings of vulnerability or desires for comfort and support, the dismissive adult utilizes ABS-deactivation (i.e., maladaptive emotion regulation) strategies such as denial and suppression of negative emotion as a way of disavowing negative information directed towards the self (Mikulincer, Dolev, & Shaver, 2004; Pereg & Mikulincer, 2004). Accordingly, research has shown individuals with a dismissive attachment style are prone to suppressing and withholding strong emotion (Fraley & Shaver, 1997; Bartholomew & Horowitz, 1991).

Lastly, Bartholomew and Horowitz conceptualized the fearful attachment style as having a negative view of self and others. As such, these individuals desire intimacy with others, but are fearful that they will be humiliated and/or betrayed by others. That is, they desire closeness with others but avoid establishing relationships with others due to fears of mistrust, abandonment, or rejection out a belief that they are not worthy of obtaining love and intimacy (Bartholomew & Horowitz, 1991; Feeney, 2008).

Additional research on attachment has provided support for two underlying attachment dimensions for both infant and adult attachment behavior (Shaver & Clark, 1994; Fraley & Waller, 1998). High “attachment anxiety” is represented by behaviors and concerns related to fears of abandonment, rejection, or separation. In contrast, high “attachment avoidance” reflects the tendency to avoid or withdraw from close relationships, deny needs for proximity to attachment figures during emotional distress, and suppress emotional expression (Shaver & Mikulincer, 2002).

Debate still exists regarding if these two domains of attachment patterns (anxiety vs. avoidance) are best represented through categorical means such as Bartholomew and Horowitz's (1991) IWM view, or if a functional approach emphasizing the role of attachment behaviors in emotional and behavior regulation better represent these two dimensions (Mikulincer & Shaver, 2007). Recent attachment research provides support for Fraley and Waller's (1998) analyses indicating that attachment processes (i.e., avoidance and anxiety) are best represented through a dimensional approach (e.g., see Mikulincer & Shaver, 2007). Specifically, studies reporting moderately positive correlations between attachment anxiety and avoidance (e.g., $r = .54$, in Fraley, Heffernan, Vicary, & Brumbaugh, 2011; $r = .52$, in Brenning & Braet, 2013) suggest these phenomena are not categorical in nature. In further support of deviating from Bartholomew and Horowitz's IWM model, Mikulincer and Shaver (2007) provide examples in which certain attachment behaviors seen in specific attachment styles do not coincide with the IWM prototypes. For example, dismissive attachment styles do not always have a positive view of self, as indicated by findings suggesting they overtly present themselves in a self-aggrandizing manner to mask feelings of inferiority, which ultimately fit with a negative view of self (Mikulincer, Dolev, & Shaver, 2004).

Accordingly, attachment researchers have combined the dimensional and typological approach to create a two-dimensional, four-category model of attachment, where the four possible combinations of attachment anxiety and avoidance (i.e., low- and high- of each dimensions) are used to divide the four adult attachment styles proposed by Bartholomew and Horowitz (i.e., secure, dismissive, fearful, and preoccupied; see Figure 2 for a depiction).

In terms of theory, clinical practice, and the empirical literature, attachment processes play a key role in the development and maintenance of interpersonal relations throughout an

individual's lifetime, with mounting evidence supporting an association between attachment disturbance and personality pathology. Such findings have led some investigators to suggest that a personality disorder is "essentially a disorder of interpersonal relatedness (Widiger & Frances, 1985, p.620)." Nonetheless, it is likely that both healthy attachment and disturbances in attachment are related to other psychological processes, such as emotion regulation strategies.

Attachment and Emotion Regulation

Defining Emotion

Emotions serve an essential role in most aspects of life, such as prompts for motivation, providing crucial information for decision making, and facilitating interpersonal relationships. Despite the far-reaching and central influence of emotion on human behavior, defining "emotion" is a challenging task that has remained unresolved since William James first asked, "What is an emotion? (James, 1884)." Accordingly, the lack of consensus among researchers and clinicians may be due, at least in part, to confusion and adequate definition of psychological constructs pertaining to "affect," "mood," and "emotion." Similarly, Watson and Clark (1997) also attest that certain forms of affect (e.g., fear) have strong correlations with associated moods (e.g., sadness), making their differentiation even more difficult.

A large body of research has defined "affect" as a term that references a variety of feeling states (e.g., sad, active, proud), whereas emotions are comprised of several aspects (e.g., overt behavior, cognitive appraisals, attentional shifts), one of which is affect (Barrett & Russell, 1999). That is, affect is a necessary, but not completely explanatory, aspect of emotion (e.g., Tellegen, Watson, & Clark, 1999). Based on this definition, affect is commonly distinguished from *mood*, in that the latter represents a relatively more stable emotional climate that has a deeper impact on an individual's behavior (e.g., irritable or depressed mood; APA, 2013).

A lack of consensus among researchers for a definition complicates the exploration of the development, influence on behavior, and regulation of emotion (Frijda, 1988). In an effort to find consensus, Gross and Thompson (2007) argue most definitions of “emotion” share three common features that shed light onto the operationalization of various processes underlying emotion: subjectivity, multidimensionality, and malleability. First, Gross and Thompson (2007) propose that emotion appears after an individual has directed attention towards a situation because the situation has been deemed relevant to his/her goals. In other words, the emotion experienced is partially a function of what meaning a situation has to an individual (i.e., subjectivity). Secondly, emotions are not a unidimensional construct, but rather are a multi-componential phenomenon with co-occurring cognitive and physiological aspects that influence human behavior. Lastly, Gross and Thompson (2007) purport that emotions are malleable in nature, in that they are frequently modified and re-experienced on a consistent basis.

With these principles and other empirical literature (e.g., Gross & Thompson, 2007) in mind, this project defines emotion as a multifaceted phenomenon involving experiential (e.g., subjective experience of emotions), behavioral (e.g., crying, laughing), and physiological (e.g., neuroendocrine responses) aspects that occur in malleable responses to both internal and external cues such as survival threats and well-being (Gross & Thompson, 2007; Mauss, Levenson, McCarter, Wilhelm, & Gross, 2005).

As previously discussed, Bowlby stated that attachment insecurity, whether through unpleasant interpersonal interactions or the departure of attachment objects, stood as a risk factor for emotional maladjustment and poor emotion regulation skills (Bowlby, 1988). Specifically, Bowlby stated that “many of the most intense emotions arise during the formation, the maintenance, the disruption, and the renewal of attachment relationships (Bowlby, 1979,

p.130).” How one deals with such intense emotion surely dictates the quality of interpersonal relationships to a certain degree, thus necessitating emotion regulation skills. The next section of this literature review therefore aims to define emotion regulation and dysregulation.

Defining and Assessing Emotional Regulation and Dysregulation

As with the definition of emotion, no single consensus concerning the definition of emotion regulation exists (Linehan, Bohus, & Lynch, 2007). Not surprisingly, a debate among emotion regulation researchers exists regarding whether emotion can be meaningfully distinguished from emotion regulation (see Kring & Werner, 2004, for a brief review). Notably, some have argued emotion is likely inseparable from emotion regulation because emotion is rarely created without some form of subsequent regulation (Cole, Michel, & Teti, 1994; Davidson, 2000; Frijda, 1986). Also, the notion of malleability of emotional experiences is consistent with this argument (Gross & Thompson, 2007). Finally, the perspective that emotion and emotion regulation are indistinguishable is supported by both functional and neuropsychological theory and empirical research (e.g., Campos, Frankel, & Camras, 2004; Thompson, Lewis, & Calkins, 2008). Given that this viewpoint has been supported by research, and considering that the resolution of this debate is not a main objective of this study, the following literature review will stray from addressing the debate and instead focus on the operationalization of emotion regulation and its associated processes, as currently supported in the literature.

While some theorists discuss emotion regulation in adaptive terms with respect to its functions as a mechanism of down-regulating negative emotion and controlling the subjective experience and expressivity of negative emotion (e.g., Kopp, 1989), others emphasize pathological emotion regulation with respect to deficits in the ability to discriminate amongst,

and respond appropriately to, negative emotion (Gross & Munoz, 1995). As such, research that examines emotion regulation solely as a means of decreasing negative emotion (e.g., Garner & Spears, 2000) overlooks empirical evidence suggesting that the inability to *experience* emotions is equally, if not more, maladaptive than the ability to regulate emotions (Gratz & Roemer, 2004). For instance, the claim that emotional constriction typically ends in more distress has been supported by numerous studies showing that conscious attempts to constrict or prevent emotional expressivity often results in greater amounts of physiological arousal and emotional distress (e.g., Wenzlaff, Wegner, & Klein, 1991). This finding is important since prior studies have demonstrated that depression, anxiety, and trauma are associated with not only increased negative emotionality, but also increased attempts to control or suppress distress thoughts and emotions (e.g., Pennebaker, 1988; Wegner, Shortt, Blake, & Page, 1990).

The idea that emotion regulation goes far beyond that of conscious emotional suppression or avoidance is furthered by the fact that many disorders, such as schizophrenia or major depressive disorder, are characterized by the absence of or flattening of emotion. Likewise, other disorders such as bipolar disorder and borderline personality disorder are often epitomized by mood lability and emotional intensity (APA, 2013).

Mayer and colleagues identified a few select abilities they believe underlie adaptive emotion regulation. For instance, they argue effective emotion regulation not only requires an individual to recognize that they are experiencing emotion, but adaptive emotion regulation also necessitates that they have a thorough understanding of why they are experiencing the emotion. Moreover, they emphasize that emotion regulation also requires the individual to utilize emotion-based information while integrating contextual cues to modify emotional reactivity and expression, and ultimately behave in a manner that is appropriate yet useful for the individual

(Mayer, Salovey, & Caruso, 2004). As such, broadening the definitional scope of emotion regulation beyond the down-regulation of negative emotion to include emotional awareness and expressivity provides a richer and more thorough understanding the processes that underlie broad emotion regulation abilities. Based on the reviewed theories of emotion and supporting empirical literature, the current proposed study will operationalize emotional regulation as both conscious and unconscious cognitive, affective, and behavioral processes used to modify the presence, frequency, intensity, duration, and expressed form of emotion (Gross & Thompson, 2007).

Within this definition lies the question of when emotion regulation problems become maladaptive. Accordingly, whether emotional regulation can be meaningfully distinguished from emotional dysregulation remains an open area in the extant emotion regulation literature. For instance, Cicchetti and colleagues differentiate “problems in emotion regulation” from “emotional dysregulation,” in that the former is characterized by absences or deficits in emotion regulation processes while the latter emphasize maladaptive utilization of emotion regulation strategies that an individual possesses (Cicchetti, Ackerman, & Izard, 1995). As outlined by Kring and Werner (2004), this distinction implies that problems in emotion regulation involve fundamental deficits in the mechanism(s) required for emotional regulation, whereas emotional dysregulation results from the maladaptive application of emotional regulation strategies. Alternatively, Keenan (2000) proposes that emotion regulation and dysregulation lie on a continuum, with emotion dysregulation representing emotion regulation behaviors that are at times considered maladaptive and out-of-context in a manner that creates dysfunction.

Lastly, Mennin and colleagues define emotional dysregulation as “maladaptive emotional responsiveness reflected in dysfunctional understanding, reactivity, and management” and offer a

four-pronged model that can be used to operationalize and define emotional dysregulation (Mennin, Holaway, Fresco, Moore, & Heimberg, 2007, pp. 295-296). Specifically, they propose that heightened intensity of emotions, poor understanding of emotions, negative reactivity to emotions, and maladaptive management of emotions, are all characteristics of emotion dysregulation.

Somewhat paradoxically, given the relatively ‘fuzzy’ and uncertain nature of the emotion regulation concepts, it turns out that emotion regulation can be soundly assessed via the use of self-report instruments that assess the multifaceted nature of emotion regulation. Specifically, Gratz and Roemer created the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) to expand the focus of emotion regulation from singular strategies (e.g., cognitive reappraisal) to broader emotional regulation processes. For instance, the DERS has proven useful in the modeling of emotion dysregulation across various forms of psychopathology such as personality disorders, eating disorders (Cooper, O'Shea, Atkinson, & Wade, 2014), alcohol use disorders (e.g., Dvorak et al., 2014), and depression and anxiety (Desrosiers, Vine, Klemanski, & Nolen-Hoeksema, 2013).

In spite of strong support for the DERS as an assessment of emotion regulation difficulties, some have struggled to replicate the original six-factor model proposed by Gratz and Roemer (2004). Specifically, various studies have cited the DERS Awareness scale as converging poorly on other DERS facets, in addition to having poor divergent validity with other theoretical constructs (Bardeen, Fergus, Orcutt, 2012; McDermott, Tull, Gratz, Daughters, & Lejuez, 2009; Tull, Barrett, McMillan, & Roemer, 2007; Tull, Gratz, Latzman, Kimbrel, & Lejuez, 2010).

Given the growing support for the DERS as a valid and reliable measure of emotion regulation problems, the current study defines emotion regulation difficulties using the six DERS facets. Emotion regulation difficulties, as defined by the DERS, includes: (1) non-acceptance of emotional responses; (2) difficulties engaging in goal directed behavior; (3) impulse control difficulties; (4) a lack of emotional awareness; (5) limited access to emotion regulation strategies; and (6) a lack of emotional clarity.

Emotion Regulation and Attachment

Attachment theory proposes that the ability to regulate emotion is derived from early childhood attachment experiences (Bowlby, 1969). Extensive research has shown that early childhood attachment experiences mold children's ability to develop a capacity for regulating emotion (Shaver & Mikulincer, 2007). The importance of these experiences extends beyond simple behavior and experience of affect, as neuropsychological research has shown that early childhood attachment interactions even has significant meaning for the neural organization related to the development of emotion regulation (e.g., Schore, 1996).

Bowlby hypothesized that the unavailability or non-responsiveness of primary attachment figures during childhood represents the infant's first necessary attempt to regulate feelings of distress (e.g., Bowlby, 1969, 1982). As such, Bowlby proposed that individuals with different attachment styles not only vary in their interpersonal behaviors (e.g., comfort seeking versus emotional distancing), but they also vary in their emotion regulation strategies when primary attachment figures are not readily available for comfort during times of distress (Bowlby, 1982). Specifically, having caregivers demonstrate emotion regulation and help the child learn how to effectively express, tolerate, and modulate emotions likely serves as a

pathway for healthy adult emotion regulation skills (Calkins & Hill, 2007; Mikulincer & Shaver, 2007).

Adult attachment research has also demonstrated that individuals differ in meaningful ways in their levels of emotional expressivity and the strategies they use to cope with emotions (e.g., Carnelley, Pietromonaco, & Jaffe, 1994; Hazan & Shaver, 1987). For instance, Pietromonaco and Barrett (1997) found dismissive adults from a student sample self-reported less positive emotions than did secure adults. Similarly, Gross and John (2003) found emotional suppression was negatively correlated with both positive and negative emotional expression to others ($r = -.37$ and $r = -.26$, respectively) in a non-clinical college student sample. Likewise, the authors also discovered a moderately positive correlation between emotional suppression and self-reported attachment avoidance ($r = .47$).

Bowlby (1969/1982, 1973, 1980) proposed that the infant's innate tendency to seek proximity when threatened or during times of distress can be defined as a "primary attachment strategy." As the infant ages and experiences the world, this strategy operates as a survival mechanism as the infant develops expectations about the availability, trustworthiness, and proximity of their primary attachment figures. As a result of having an attachment figure that is emotionally responsive and attuned to the child's needs, the child begins to develop adaptive emotional generation and flexible emotional regulation strategies (Mikulincer & Shaver, 2007). Accordingly, adults with a secure attachment style have been shown to have an enhanced ability to self-soothe, cognitively reappraise stressful events, maintain self-efficacy, and use flexible problem solving skills in emotionally-challenging situations (Mikulincer & Shaver, 2007). Likewise, adults with a secure attachment styles are able to openly express positive and negative affect without fears of becoming overwhelmed or being controlled by their feelings. They also

are better able to communicate feelings to others and use emotion in healthy, reconstructive manner that strengthens relationships with others (Mikulincer & Shaver, 2007).

Conversely, adults with insecure attachment styles are prone to maladaptive emotional coping strategies, such as the denial of distress, rumination, distortion of emotional experience, or suppression (Gross & John, 2003; Mikulincer & Shaver, 2007). For instance, recent research investigating an emotion-specific model of attachment behaviors found that attachment anxiety was positively correlated with the inability to regulate sadness ($r = .31$) and anger ($r = .31$), as well as attempts to suppress these emotions. Likewise, the authors discovered that high attachment avoidance was positively correlated with the inability to regulate anger ($r = .29$) and attempts to suppress feelings of sadness ($r = .29$, Brenning & Braet, 2013).

Bowlby's original postulates and contemporary research has suggested these problematic emotional coping strategies likely develop from having attachment figures who were disinterested, unavailable, untrustworthy, insensitive, or otherwise unable to bids for proximity and subsequent comfort (Bowlby 1973/1980; Mikulincer & Shaver, 2007). In situations like these, attachment theory states that the primary attachment strategy has failed and attachment insecurity is likely to ensue (Bowlby, 1973). Since the primary attachment strategy has failed, ensuing attachment insecurity likely creates negative emotions that requires new methods of emotion regulation that take the form of secondary attachment strategies.

Secondary attachment strategies are defined by either the hyper-activation or deactivation of the Attachment Behavior System (ABS) and serve as methods of coping with the unavailability of attachment figures or other caretakers (Mikulincer & Shaver, 2007; see Figure 3). Hyper-activation strategies are associated with high attachment anxiety, in that they are laden with attempts to obtain physical or emotion proximity following cues that signify attachment

figures' unavailability (Mikulincer & Shaver, 2007). As such, the primary function of hyper-activation strategies is to elicit care or attention from the individual's primary attachment figure. These strategies typically take the form of excessive clinginess, emotional dependency, excessive demands for attention and care, and even emotional or physical symptom exaggeration (Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002; Shaver & Mikulincer, 2008). Reliance upon hyper-activation strategies can result from attachment figures' inconsistent responses to bids for comfort, over-reaching parenting that limits the child's ability to self-regulate and learn adaptive emotional coping skills, receiving messages that insinuate the child has low worth, or trauma (Mikulincer & Shaver, 2007). As a result, adults who rely upon hyper-activation strategies are prone to excessive worries about rejection and abandonment, excessive emotional reliance upon others, and poor emotion regulation (Mikulincer & Shaver, 2007).

In contrast, ABS deactivation strategies are associated with high levels of attachment avoidance and are typified by attempts to minimize or deny distress, suppress needs or vulnerabilities, and disavow the need for reliance upon others (Edelstein & Shaver, 2004; Mikulincer & Shaver, 2007). Mikulincer and Shaver (2007) propose that adulthood reliance on deactivation strategies during times of distress can result from repeated aversive responses (e.g., anger, rejection) from caregivers, violent or abusive behavior associated with attachment figures, or threats of punishment when the child attempts to utilize proximity-seeking strategies. As a result of these non-normative attachment experiences, the child develops an emotional coping strategy characterized by "turning off" or deactivating the attachment system, which results in denial of distress and the absence of bids for comfort. Functionally, this strategy serves as a way of dismissing and avoiding pain experienced from realizing that others may be, at times, unavailable to give them comfort. Accordingly, research has shown individuals with attachment

styles characterized by ABS-deactivation and high attachment avoidance are more likely to suppress their feelings, are less emotionally expressive, and have difficulty expressing love, compassion, and empathy (Bartholomew & Horowitz, 1991; Fraley & Shaver, 1997; Mikulincer & Shaver, 2007; Shiota, Keltner, & John, 2006).

Secondary attachment strategies represent an important aspect of attachment theory because such strategies used in childhood typically carry over to adulthood. That is, as individuals age and learn which attachment strategies are most successful, these strategies become more engrained and automatic (Obegi & Berant, 2009). Although individuals with secure attachment styles possess flexible and relatively stable patterns of emotion regulation, those with insecure attachment styles possess a narrower range of emotional expressivity and tend to rely upon defensive secondary attachment strategies (Shaver & Mikulincer, 2002). Moreover, adult attachment processes related to comfort-seeking closely parallel those observed in children. While children typically seek out caregivers (i.e., parents) during times of distress, adults also seek out attachment figures (most likely a romantic partner in adulthood) that will hopefully respond in a manner that is reassuring and comforting (e.g., Collins & Feeney, 2010). Ultimately, the persistence of maladaptive secondary attachment strategies into adulthood hinders the development of adaptive emotion regulation. As a result, adults are more prone to developing distorted perceptions of self and others in ways that may result in low self-efficacy, reduced emotional intimacy with significant others, and poor interpersonal functioning (Mikulincer & Shaver, 2007).

In sum, attachment processes appear to influence the development of adaptive (or maladaptive) emotion regulation skills, as engagement of the attachment system inherently involves emotion regulation (Mikulincer & Shaver, 2007). When threatened, securely attached

individuals possess the ability to regain a sense of control rather than losing or fearing loss of control over their emotions, a process that ultimately facilitates effective emotional coping, situational reappraisal, and adaptive emotional expression and communication (Mikulincer & Shaver, 2007). In contrast, adults with avoidant attachment rely upon down-regulation strategies (e.g., blocking emotional reactions) while anxious adults utilize hyperactivation strategies as means of gaining attention or care. Although these emotion regulation strategies may be interpersonally effective in the short-term, by their very nature, they will ultimately create interpersonal discord. On the other hand, if some awareness of the discordant interpersonal processes can be brought to the forefront in such situations, it opens the door, so to speak, for potentially healthy emotion regulation strategies, as well as more adaptive interpersonal discourse.

A large body of research has begun emphasizing the importance of mindfulness skills in facilitating adaptive emotion regulation skills (Gratz & Roemer, 2004). That is, approaching experiences and emotions from a more attentive, mindful perspective may help limit emotional lability and reactivity (Linehan, 1993). The next section aims to further elaborate on this consideration.

Mindfulness

Mindfulness can be defined as an intentional shift of awareness and attention towards present-moment experiences, such as thoughts, emotions, bodily sensations, and behaviors (Hayes, Strosahl, & Wilson, 2012). Here, *awareness* can be defined as the “background radar” (Brown & Ryan, 2003, p. 822) that is responsible for the continued monitoring of both internal and external stimuli (e.g., bodily sensations), whereas *attention* refers to the process by which awareness becomes focused (Westen, 1999). Moreover, awareness and attention differ from

normal consciousness in that mindfulness attempts to facilitate an “open” form of attention and awareness that precludes judgments or attempts to change current experiences (Brown & Ryan, 2003). Treatments that utilize mindfulness techniques (e.g., Acceptance and Commitment Therapy; Hayes et al., 2012; Dialectical Behavior Therapy; Linehan, 1993; Mindfulness Based Cognitive Therapy for Depression; Segal, Williams, & Teasdale, 2002; Wupperman et al., 2012) facilitate a non-judgmental and open form of awareness and attention to the present moment in which the individual focuses more on experiencing the moment rather than attempting to alter their experience (e.g., thought suppression) or judging their experience as “good” or “bad” (Brown & Ryan, 2003; Hayes et al., 2011). Developing this ability to observe thoughts and feelings while also labeling their experiences is proposed to help individuals understand that their perceptions of external or internal experiences (e.g., such as thoughts and feelings) do not necessarily represent or accurately reflect ‘reality’ (Linehan, 1993). In this way, the identification of alternative ways of behaving and coping with emotions becomes a more ‘real’ possibility.

As such, mindfulness techniques have been shown to be efficacious in the treatment of many forms of psychopathology that involve disturbances in emotion and cognition, such as anxiety disorders, psychosis, depression, eating disorders, trauma, chronic pain, and personality disorders (Eifert & Forsyth, 2005; Gaudiano & Herbert 2006; Hayes et al., 2012; Kabat-Zinn, Lipworth, & Burney, 1985; Linehan, 1993; Pearson, Follette, & Hayes, 2012; Twohig & Hayes, 2008; Walser & Hayes, 2006; Wupperman et al., 2012). Likewise, numerous empirical studies have demonstrated that increases in mindfulness are associated with numerous positive clinical outcomes, including reduced depression and anxiety symptomatology, increased self-esteem and self-efficacy, higher self-reported well-being, and enhanced emotion regulation skills (Brown &

Ryan, 2003; Erisman & Roemer, 2012; Linehan, Bohus, & Lynch, 2007; Ryan & Deci, 2001; Wupperman, Neumann, & Axlerod, 2008).

Although ostensibly similar in many aspects (e.g., Siegel, 2007), it should be noted that mindfulness is different than emotion regulation. Broadly, mindfulness is a state-like mental process, whereas emotion regulation and associated strategies (e.g., deep breathing, emotional suppression) are purposeful and goal-oriented behaviors (Blackledge & Hayes, 2001; Gross, 2007). Likewise, mindfulness perspectives approach emotions and other experiences (e.g., bodily sensations) as temporary events that need not be changed, altered, or reduced given their temporary nature (Blackledge & Hayes, 2001). This approach has even led some mindfulness researchers to suggest that excessive attempts to regulate emotion are partially responsible for the development and worsening of psychopathology (Blackledge & Hayes, 2001). Ultimately, advocates of mindfulness argue that treating experiences as they are (e.g., thoughts as thoughts, rather than certain truths) allows individuals to freely live rather than being tied down by psychological suffering (Hayes et al., 2012).

In this context, it is reasonable to suggest that deficits in mindfulness and emotion regulation, independent of or in combination with attachment disturbance, both contribute to maladaptive interpersonal functioning. However, the role that these psychological phenomena play in the development and persistence of personality pathology remains to be explored. The next section provides coverage of current conceptualizations of personality pathology and summarizes relevant literature linking personality disorder features with attachment disturbances, deficits in mindfulness, and problems in emotion regulation.

Personality Pathology

Definition, Clinical Correlates, and Prevalence of Personality Disorders

Personality Disorders (PDs) are characterized by inflexible, maladaptive, and persistent patterns of interpersonal behavior, cognition, affect, and impulse control (APA, 2013). This broad definition of PD pathology exemplifies the complicated, global, and yet multi-faceted presentation of these disorders. While PD diagnoses vary greatly in their clinical presentation, contemporary research suggests that PDs can be represented by various extreme personality trait constellations that result in marked impairment in social, occupational, or other important domains of broad psychosocial functioning (e.g., self-esteem). This impairment is theorized to be global and stable across various contexts (e.g., work, school, and home-life), which likely accounts for the pervasive nature of these disorders.

Numerous studies have presented findings that suggest individual with PDs are prone to various outcomes such as substance abuse, health problems, criminal activity, divorce, occupational impairment, receipt of social welfare services, and suicide attempts (Bolton, Belik, Enns, Cox, & Sareen, 2008; Lenzenweger, Lane, Loranger, & Kessler, 2007; Trull, Jahng, Tomko, Wood, & Sher, 2010; Vaughn et al., 2010; Yen, et al., 2003). Although not an exhaustive list, these clinical correlates exemplify the serious impairment seen in individuals with personality pathology. Moreover, research has found that psychosocial impairment seen in those with PDs is often greater than the impairment observed in individuals with other clinical disorders, such as major depressive disorder (e.g., Skodol et al., 2005).

Although PD prevalence rates largely vary based upon which PDs are being examined, a general population study of the 43,093 individuals from the National Institute on Alcohol Abuse

and Alcoholism's National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) study indicated that approximately 15 percent of the general population met criteria for at least one personality disorder (Grant, Stinson, Dawson, Chou, Ruan, & Pickering, 2004). Notably, some investigators have pointed out the relatively liberal threshold for a PD diagnosis in the NESARC study. Reanalysis of the NESARC data, in addition to data from other studies, indicate that more precise general population, as well as college-age, prevalence rates are closer to 10 percent (Coid, Yang, Tyrer, Roberts, & Ullrich, 2006; Lenzenweger, Loranger, Korffine, & Neff, 1997; Lenzenweger et al., 2007; Torgensen, 2005; Trull et al., 2010). Nevertheless, this estimated prevalence rate is on par with other major mental disorders involving disturbances in mood and substance use.

Dimensional Models of Personality Disorders

Despite a longstanding debate within the field of personality disorder research regarding categorical versus dimensional models of personality disorders, as well as a considerable literature which supports a dimensional approach, the newly revised Diagnostic and Statistical Model of Mental Disorders, 5th ed. (DSM-5; APA, 2013) elected to maintain the categorical, polythetic symptom-driven model of PD diagnosis observed in fourth edition of the DSM (DSM-IV-TR; APA, 2000). Thus, the DSM-IV and DSM-5 offer 10 PD diagnoses that are grouped into three clusters based on their characteristic definitions.

Briefly, "Cluster A" PDs are characterized by odd or eccentric behavior (e.g., magical thinking, paranoid ideation) and consists of Avoidant, Schizoid, and Schizotypal PDs. "Cluster B" PDs are defined by their overly emotional, dramatic, and erratic behavior, and consist of Narcissistic, Histrionic, Antisocial, and Borderline PDs. Lastly, Cluster C PDs are typified by their anxious and fearful behavioral tendencies, and include Obsessive Compulsive, Avoidant,

and Dependent PDs. A PD diagnosis is then made based upon an individual successfully meeting a seemingly arbitrary number of PD criteria (e.g., meeting five of nine criteria in Schizotypal PD).

Although the categorical approach offers some advantage such as easier communication between professionals and ease of clinical utility (e.g., Livesley, 2007), research indicates these advantages do not outweigh empirical evidence favoring a dimensional diagnostic system. That is, multiple studies have shown the current diagnostic system is plagued by significant within-diagnosis heterogeneity, high comorbidity rates among PDs, temporal instability, and numerous other issues such as the inability to clearly differentiate normative from pathological personality functioning (Clark, 2007; Shea et al., 2002; Skodol et al., 2011; Widiger & Mullins-Sweatt, 2010; Zimmerman, 1994).

Despite the apparent advantages to a dimensional PD approach, some have argued that the proposed alternative dimensional model (which ultimately was not adopted) listed in the appendix of the DSM 5 is too complex and difficult for clinicians to learn (e.g., Trull, Tragesser, Solhan, & Schwartz-Matte, 2007). These diagnostic and nosological concerns have led various researchers to propose that PD pathology is best represented as a hybrid of personality traits and subsequent symptomatic behaviors (e.g., Markon, Krueger, & Watson, 2005; McGlashan et al., 2005; Widiger & Trull, 2007).

Consequently, researchers favoring the Five Factor Model of personality have proposed that both normal and abnormal (i.e., pathological) personality can be validly assessed using the FFM's five broad domains of personality. For each of the five broad domains, there are six lower-order facets that are subsumed by their respective higher order personality domain (e.g., Widiger, 2011). Briefly, the five broad domains are as follows (Costa & Widiger, 2002):

Neuroticism is defined by the general tendency to experience negative affect such as fear, disgust, sadness, guilt, embarrassment, and anger; *Openness* is defined by the tendency to have an active imagination, attentiveness to inner feelings, and intellectual curiosity; *Conscientiousness* measures the degree to which one is purposeful, reliable, strong-willed and determined to attain goals; Individuals high in *Extraversion* tend to be assertive, active, energetic, and talkative; *Agreeableness* assesses the tendency to be sympathetic and altruistic towards others, be helpful to others while possessing beliefs believes that others will be helpful in return. Recently, proponents of the FFM have recommended that the model should be used to conceptualize PDs (e.g., Mullins-Sweatt, Jamerson, Samuel, Olson, & Widiger, 2006).

These five domains and associated lower-order facets that are part of each broad domain have been shown to predict DSM-IV personality disorder symptoms, with some results suggesting normal and abnormal range personality traits share a similar continuous structure (e.g., Clark & Livesley, 2002; Clark, Vorhies, & McEwen, 2002; McCrae et al., 2001; Schroeder, Wormworth, & Livesley, 2002; Wiggins & Pincus, 2002). However, meta-analyses indicate that various aspects of personality pathology are not measured when solely relying upon the FFM's normal-range approach to personality (Saulsman & Page, 2004; Skodol et al., 2011).

In response to some of these limitations, PD researchers have recently developed a set of personality domains and associated trait facets that overlap with the FFM model, yet still offer incremental PD validity (e.g., De Fruyt et al., 2013). This model, which served as a basis for the DSM-5's alternative model for personality disorders, has recently gained a great deal of attention and is steadily gaining empirical support (Hopwood et al., 2013; Skoldol et al., 2011). Accordingly, the current study conceptualizes personality pathology from this trait-based

approach to assess the six hypothesized personality disorders proposed in the DSM-5's alternative PD model.

The PD researchers supporting this alternative model propose that personality pathology can be discussed in terms of five broad personality trait domains: *Negative Affectivity* is characterized by frequent and intense emotional experiences (e.g., anger, shame) and their associated behavioral correlates (e.g., self-harm). *Antagonism* is characterized by manipulateness, deceitfulness, callousness, and hostility, as well as attention-seeking and self-aggrandizing behaviors. *Psychoticism* is defined characterized by odd and eccentric behavior, thought processes, and thought content, and is assessed by the lower-order trait facets of unusual beliefs and experiences, eccentricity, and cognitive/perceptual dysregulation. *Disinhibition* is epitomized by reckless and impulsive behaviors, and is characterized by trait facets of distractibility, impulsivity, irresponsibility, risk-taking behaviors, and a lack of rigid perfectionism. Lastly, *Detachment* is defined as the “avoidance of socioemotional experiences (APA, 2013, p.777),” and is characterized by trait facets such as social withdrawal, depressivity, suspiciousness, anhedonia, and intimacy avoidance. Across a range of studies, these traits and their associated facets have been shown to correlate highly with DSM-IV PDs, further indicating their utility in PD conceptualization (Hopwood et al., 2012; Krueger, Derringer, Markon, Watson, & Skodol, 2012; Wright et al., 2012). To measure these five personality disorder domains from a trait-based perspective, some members of the DSM-5 personality disorder workgroup created the Personality Inventory for DSM-5 (PID-5; Krueger et al., 2012), a 220-item self-report measure assessing the aforementioned five personality dimensions.

Recent PID-5 analyses have found preliminary support for a reduced set of PID-5 items that allow researchers to adequately capture the broad scope of personality pathology, while

concurrently offering researchers a brief assessment of the PID-5 trait domains (Maples et al., 2015). Essentially, this method reduces the number of items in the original PID-5 to a much more feasible reduced number of items in the reduced-set measure (“PID-r”; 100 items). Based on these initial published results, as well as preliminary comparisons of the full- and reduced-set of PID-5 items using Confirmatory Factor Analysis of the current proposal’s data, a decision was made to use the reduced set of items in the current study.

Disturbed Attachment and Specific Personality Pathology

A growing body of empirical evidence has led many clinicians and researchers to increasingly approach personality pathology from an attachment-oriented perspective. This finding should not be surprising given that the basic definition of a personality disorder implies interpersonal dysfunction. However, the nature and course of this dysfunction varies greatly across specific forms of personality pathology and is in need of additional research. Although most of the following literature will focus on Borderline Personality Disorder (BPD), as attachment-PD research has largely limited its scope to BPD, this review will attempt to cover the limited extant research linking attachment disturbances and emotional dysregulation to other PDs.

As previously mentioned, the extant literature examining insecure attachment styles in the context of personality pathology has focused on BPD, which is represented by rocky interpersonal relationships, identity struggles, and emotion regulation difficulties (APA, 2013). For example, Brennan and Shaver (1998a) report a significant proportion (approximately 70%) of individuals in their sample who possessed BPD were also characterized by an insecure attachment style. A similar study utilizing 251 inpatients and outpatients found attachment disturbances significantly differentiated BPD patients from non-clinical and non-PD psychiatric

patients (Fossati et al., 2001). Likewise, Nickell, Waudby, and Trull (2002) examined BPD features (as measured by the Personality Assessment Inventory-Borderline Features Scale [PAI-BOR, Morey, 1991]) and attachment dimensions in a non-clinical student population, ultimately demonstrating that BPD features were moderately inversely correlated with secure attachment ($r = -.44$), and positive associated with avoidant ($r = .33$), and anxious/ambivalent ($r = .35$) attachment styles.

Although the overwhelming majority of studies examining attachment and BPD find a strong positive association between BPD traits and insecure attachment styles (Agrawal et al., 2004), there is broader disagreement as to how latent insecure attachment constructs are specifically related to BPD. This disagreement is largely the product of methodological differences, such as differences in the operationalization of attachment constructs (i.e., dimensional vs. categorical models) and the specific measures used in the studies.

Although research has clearly identified a strong positive association between BPD pathology and insecure attachment tendencies, disagreement still exists as to how these two constructs are related (see Agrawal et al., 2004 for a review). For instance, some have found that BPD pathology is best explained by an unresolved or disorganized attachment style (e.g., Levy, Beeney, & Temes, 2011). In support of this view is a frequent clinical occurrence in which individuals with BPD report a strong desire for closeness with others, but often become uncomfortable or hostile when others become too close and subsequently use emotional distancing strategies to prevent the establishment of relational intimacy (Wallin, 2007). This relational pattern creates tumultuous relationships in which individuals use fluctuating (i.e., unresolved) attachment strategies of approach and avoidance that likely creates the rocky interpersonal relationships that typify BPD (e.g., Bouchard, Sabourin, Lussier, & Villeneuve,

2009). Similarly, other research has demonstrated a strong positive link between BPD and preoccupied attachment tendencies (e.g., Patrick, Hobson, Castyle, Howard, & Maughan, 1994; Scott et al., 2013), which are frequently manifested through excessive clinginess and exaggerative behaviors designed to elicit attention and comfort (Bartholomew et al., 2001).

Given that attachment research has shown secure attachment styles are linked to enhanced emotion regulation skills (e.g., Diamond, Hicks, & Otter-Henderson, 2006), it is not surprising that studies examining emotion regulation and BPD find individuals with prominent borderline characteristics have notable emotion regulation problems (e.g., Conklin, Bradley, & Westen, 2006; Linehan, 1993). Clearly, problematic BPD characteristics have a strong clinical and empirical link to problematic attachment behaviors. However, maladaptive attachment patterns are increasingly being observed and studied amongst other PDs.

Antisocial Personality Disorder (ASPD) is a disorder marked by aggressive, callous, and impulsive behaviors and attitudes (APA, 2013). Accordingly, ASPD has been linked to maladaptive outcomes such as increased levels of criminal activity, substance abuse, trait impulsivity, and emotional difficulties (Messina, Wish, Hoffman, & Nemes, 2001; Mullin & Hinshaw, 2007; Serin & Amos, 1995). Although related to but not isomorphic with ASPD, similar research has shown various psychopathic personality traits are related to higher levels of both attachment anxiety and avoidance (MacKenzie, 2003). The clinical characteristics of callousness and aggression that underlie ASPD and psychopathy implicate a dismissive attachment style, a finding that has been supported by some research (e.g., Beech & Mitchell, 2009; Rosenstein and Horowitz, 1996). Although this study supports the view that antisocial tendencies characteristic of ASPD (e.g., callous behavior) are partially explained by high levels attachment avoidance in ASPD, various studies have also found that both attachment avoidance

and anxiety are related to ASPD (e.g., Cooper, Shaver, & Collins, 1998; Gwadz, Clatts, Leonard, & Goldsamt, 2004; Mickelson, Kessler, & Shaver, 1997), consistent with the finding that avoidance and suppression of emotion is not optimal and often results in increased negative affect. This lack of consensus among researchers as to how ASPD is related to attachment dimensions may be related to the significant diagnostic heterogeneity observed in the categorical diagnosis of ASPD (e.g., Clark, 2007; Livesley, 2007). Accordingly, examining the link between attachment dimensions and ASPD from a trait-based model may clarify their association.

Individuals with Avoidant Personality Disorder (AVPD) often have a desire for relational intimacy, but also possess fears that they will be hurt or humiliated by others (Duggan & Brennan, 1994). Likewise, their proneness to viewing themselves as inadequate and inferior to others typically instills social avoidance (Dolan-Sewell, Krueger, & Shea, 2001). In relation to attachment theory, these two aspects of AVPD represent a negative model of self and others, which is theoretically indicative of high attachment anxiety and avoidance that typify a fearful attachment style (Bartholomew et al., 2001). However, the exact relationship of attachment anxiety and avoidance to AVPD is vastly under-studied and unknown. Again, this lack of clarity is partially due to the categorical diagnostic system used to assess AVPD, as observed through the disorder's significant overlap with ASPD and BPD (e.g., Grant et al., 2008).

Lastly, preliminary empirical evidence has suggested that Schizoid Personality Disorder (SPD), a disorder characterized by extreme detachment from social relationships and indifference to others, may be linked to a dismissive attachment style (Brennan & Shaver, 1998). However, little research has examined the full range of traits that subsume SPD and therefore its relation to attachment and emotion systems warrants further study.

While these findings offer insight into how these disorders (i.e., BPD, ASPD, AVPD, and SPD) are related to underlying attachment dimensions, few studies have expanded the focus to determine how specific dimensions of PD are linked with specific attachment problems, or how other PD domains are related to attachment insecurity.

Attempts to address how personality pathology is related to attachment insecurity have been impeded by construct overlap among PDs and their associated attachment styles (e.g., Meyer & Pilkonis, 2005). For instance, research has shown that Dependent Personality Disorder, a disorder epitomized by low-self-esteem, separation anxiety, and emotional clinginess, shares a high degree of overlap with contemporary definitions of preoccupied attachment tendencies and modern conceptualizations of BPD (e.g., Rosenstein & Horowitz, 1996). Given the large degree of diagnostic overlap amongst PDs with respect to the attachment perspective (Stuart et al., 1998), research might advance by examining how disturbances in attachment are associated with specific PD dimensions that these personality disorders share.

Emotion Regulation Problems and Mindfulness Deficits in Personality Pathology

Although many studies have demonstrated that most PDs are associated with attachment disturbances, few studies have moved beyond the establishment of a simple association between these two phenomena to pursue a more precise articulation of how specific attachment domains are linked with specific PD dimensions. Moreover, a hypothesis that remains to be tested is whether the emotion regulation problems typically observed in personality pathology are a product of the inability to manage extreme attachment anxiety amongst other emotions (Bartholomew et al., 2001). This investigation is supported by research suggesting that emotion regulation difficulties may underlie all PDs (Scott et al., 2013). Although maladaptive attachment processes and emotional dysregulation are clearly linked to the expression of

personality pathology, very few studies have examined how attachment and emotion regulation are represented in broad personality pathology domains. Despite DSM-IV and DSM-5's claim that deficits in emotional processes (i.e., "the range, intensity, lability, and appropriateness of emotional response" APA, 2013, p.646) underlie general personality pathology, research examining the role of emotion regulation difficulties in personality pathology has generally focused on BPD (e.g., Fonagy, Target, Gergely, Allen, & Bateman, 2003; Kernberg, 1986; Linehan, 1993), and future research can also focus on other relevant forms of personality pathology.

Emotion regulation problems are central to BPD, with some even defining BPD as "a disorder of the emotion regulation system (Linehan, 1993, p. 43)." Notably, Linehan's model of borderline pathology has served as a prominent approach to the study and treatment of BPD. In her approach, Linehan states that individuals with borderline pathology lack emotion regulation skills and have a unique vulnerability to emotion. Specifically, Linehan hypothesizes that emotional vulnerability seen in those with BPD have neurological and biological sensitivities to emotional stimuli, are prone to experiencing emotion more intensely, and are less able to quickly re-center themselves after an intense emotional experience (Linehan, 1993). Accordingly, longitudinal data suggest the unpredictable, labile, and intense emotionality that epitomize BPD is one of the most stable and prevalent aspects of BPD (McGlashan et al., 2005).

Similarly, Scott, Levy, and Pincus (2009) discovered that various personality traits related to negative affectivity such as anger, hostility, and depression mediated the relationship between attachment style and borderline personality traits in a sample of young adults. A similar study using a nonclinical sample of Italian adolescents found the relationship between BPD traits and emotional regulation difficulties were somewhat mediated by maladaptive attachment

behaviors (Fossati et al., 2014). Although these findings offer insight into how emotion regulation difficulties are related to attachment insecurity and personality pathology, expanding the focus of research to include other aspects of personality pathology (e.g., impulsivity) could shed light on how attachment insecurity may lead to personality pathology.

Although BPD has been clearly linked to emotion regulation problems, the relationship of emotion regulation problems to other PDs is under-studied. Moreover, few studies have examined emotion regulation problems across broad (symptom- or trait-based) domains of personality pathology. Recently, Scott et al. (2013) conducted a series of confirmatory factor analyses to explore how other forms of PD pathology may be accounted for in terms of emotion regulation problems and attachment insecurity. Results suggested that disturbances in attachment processes and difficulties in emotion regulation also play a role in other PDs, in this case AVPD and ASPD. In addition, the authors documented significant comorbidity amongst these three PDs, and highlighted that the pattern of emotion regulation difficulties and attachment disturbances helped to differentiate the three PDs. While the authors note that including other PDs in the study would have been useful, they provide preliminary evidence suggesting emotion regulation difficulties are likely involved in all forms PDs.

As previously mentioned, mindfulness aims to create a mental state in which an individual becomes fully aware, attentive, and accepting of the present moment, without fears of losing emotional control or letting cognitions spiral out of control (Kabat-Zinn, 2003). Mindfulness has strong ties to emotion regulation, given a mindful stance towards one's emotions improves emotion regulation skills (Linehan et al., 2007). Similar to the extant literature examining emotion regulation difficulties, the majority of research investigating mindfulness in the context of personality pathology has focused on BPD. Empirical research has

repeatedly demonstrated that individuals with BPD tendencies have difficulties with awareness and attention to self-based thoughts, behaviors, bodily sensations, and emotions (e.g., Baer, 2003; Linehan, 1993; Wupperman et al., 2008). Recent analyses have suggested that mindfulness deficits may underlie BPD tendencies related to impulsivity and emotion regulation difficulties (Wupperman et al., 2008).

As such, numerous treatments have begun placing great emphasis on mindfulness-based processes to treat BPD and other disorders of emotion regulation. For instance, Peter Fonagy's Mentalization Based Treatment for BPD is based upon the premise that the lack of awareness into mental states (e.g., emotions, intentions behind behavior) of self and others creates maladaptive self-regulatory behavior and poor emotion regulation skills (Bateman & Fonagy, 2004). Likewise, Marsha Linehan's Dialectical Behavioral Therapy (DBT) treatment places great emphasis on utilizing mindfulness techniques to enhance emotional coping techniques (Linehan, 1993). Specifically, research has documented that the combination of intense negative affect and poor emotional control create an emotional environment that seems overwhelming and even intolerable (Rosenthal, Cheavens, Lejuez, & Lynch, 2005; Stiglmayr, Grathwol, & Bohus, 2001).

The combination of strong negative affect and subsequent emotional avoidance is not specific to BPD, as a great deal of research indicates most PDs share strong levels of negative affect (e.g., Widiger & Smith, 2008). Likewise, preliminary research indicates other PDs may also share deficits in emotional awareness and poor emotion coping strategies (Donahue, McClure, & Moon, 2014; Gratz, Tull, Matusiewicz, Breetz, & Lejuez, 2013; Joyce, Fujiwara, Cristall, Ruddy, & Ogrodniczuk, 2013). Given that other PDs share strong negative affect, it is also plausible that deficits in mindfulness may also play a role in these disorders. To date, only

one study has examined whether other PDs are also associated with deficits in mindfulness (Fossati, Vigorelli Porro, Maffei, & Borroni, 2012). Although the study demonstrated some PDs other than BPD (i.e., SPD, ASPD, and AVPD) were related to mindfulness deficits, the study's methodological concerns (e.g., poor measure reliability) and focus on Italian clinical adults warrant replication. Specifically, the inclusion of emotion regulation and attachment measures to further understand how these constructs are related to mindfulness will help researchers further understand how attachment insecurity, emotion regulation difficulties, and mindfulness deficits may help account for personality pathology.

This literature review was organized with intent to demonstrate relevant research linking personality pathology to attachment disturbances, emotion regulation problems, and deficits in mindfulness. Although this review suggests that these psychological phenomena play a role in the creation and maintenance of PD pathology, researchers have yet to explore the interrelatedness of these constructs with specific respect to personality pathology.

The current study

This study represents the first attempt to investigate the extent to which emotion regulation difficulties, deficits in mindfulness, and disturbances in attachment can account for broad trait-based features of personality pathology. The main research question to be addressed is whether deficits in mindfulness and emotion regulation difficulties mediate the relationship between attachment disturbances and personality pathology. The current study also serves as the first study to investigate these constructs in the context of personality pathology as defined by the empirically supported DSM-5 alternative PD model. Specifically, the current study aims to (1) understand how emotion regulation difficulties are associated with dimensional personality pathology, (2) investigate how mindfulness is related to dimensional personality pathology, and

(3) further the understanding of how attachment anxiety and avoidance are related to dimensional personality pathology, and finally, (4) estimate the degree of inter-relations among the emotional regulation, mindfulness, and attachment disturbance constructs.

CHAPTER 2

METHODS

Participants

College Sample

This sample is comprised of 946 undergraduate students recruited from the University of North Texas. Participants in this study were compensated with two research participation credits used for their courses.

General Population Sample

A community sample was also utilized which involved 250 participants assessed through Amazon's Mechanical Turk (MTurk), an online marketplace serving as a host for a diverse population of users who complete a variety of online tasks for monetary compensation (Buhrmester, Kwang, & Gosling, 2011). Each participant was compensated \$2.00 for completion of the study. MTurk has been found to be a relatively inexpensive, yet reliable and valid source of research participants and high-quality data (see Goodman, Cryder, & Cheema, 2013 for a review of MTurk's advantages and disadvantages).

Materials

Experiences in Close Relationships-Revised (ECR-R)

The ECR-R (Fraley, Waller, & Brennan, 2000) is a 36-item self-report measure of adult attachment styles derived from item response theory analyses of the original 36 ECR items (Brennan, Clark, & Shaver, 1998). The ECR-R uses a seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*) for items assessing how they feel in emotionally intimate relationships. These 36 items subsume two latent attachment factors: "*Avoidance*," discomfort with closeness or depending on others, and "*Anxiety*," the tendency to worry about rejection or

relationship loss. Studies have shown that the ECR-R replicates the original ECR's proposed two-factor structure and demonstrates sufficient reliability and construct validity (e.g., Fairchild & Finney, 2006; Sibley, Fischer, & Liu, 2005).

Using data from the current study, an initial CFA testing the traditional two-factor (i.e., attachment-anxiety and attachment avoidance) ECR-r model fell slightly short of adequate model fit for the two factor model (TLI = .88, CFI = .89; RMSEA = .11). Results from this CFA are shown in Table 1. Higher scores indicate greater disturbances in attachment.

Difficulties in Emotion Regulation Scale (DERS)

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item self-report measure of emotional regulation abilities. The DERS is comprised of six emotional regulation scales. Gratz and Roemer's (2004) initial validation study reported excellent internal consistency reliability for the six subscales ((NONACCEPT; GOALS; IMPULSE AWARE; STRATEGIES; CLARITY; α range .80 - .93, average mean inter-item correlation = .50). Likewise, subsequent studies have reported excellent reliability (e.g., mean scale α = .92; Hill & Updegraff, 2012). Higher scores suggest more emotion regulation problems.

Initial CFA analyses revealed adequate fit for the six-factor DERS model (TLI = .91, CFI = .92; RMSEA = .09), and subsequent CFAs with the DERS Awareness scale removed yielded improved model fit (TLI = .92, CFI = .93; RMSEA = .09). Standardized parameters for the five-factor DERS model are shown in Table 2. Model fit difficulties due to the DERS Awareness scale have been well-documented (e.g., Bardeen et al., 2012; Fowler et al., 2014), and as such, the DERS Awareness scale was excluded from the main SEM analyses in the current study.

Mindfulness Attention Awareness Scale (MAAS)

The Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003) is a 15-item self-report measure of mindfulness. The MAAS uses a 6-point Likert type scale (1 = almost always; 6 = almost never) to evaluate levels of attention and awareness towards thoughts, emotions, situations, and sensations. Higher scores represent higher levels of dispositional mindfulness. Reliability and validity of the MAAS have been well established (e.g., Brown & Ryan, 2003).

After initial CFA analyses in the current study confirmed the unidimensional nature of the MAAS items, these items were parceled into three separate factors (i.e., five items per factor). Subsequently, a CFA revealed generally adequate model fit (TLI = .92, CFI = .93; RMSEA = .11), though absolute fit was a bit suboptimal. These three parcels, as shown in Table 3, were used in SEM analyses as indicator variables of a latent dispositional mindfulness variable.

Personality Inventory for DSM-5 (PID-5)

The Personality Inventory for DSM-5 (PID-5; Krueger et al., 2012) is a 220-item (four-point Likert scale ranging from 0 = *very false or often false*, 3 = *very true or often true*) self-report measure of 25 personality trait facets that subsume five higher-order personality pathology domains: Antagonism, Detachment, Disinhibition, Negative Affectivity, and Psychoticism. The PID-5 was developed with the goal of creating a dimensional, trait-based, assessment of personality pathology to be used in the DSM-5 (APA, 2013). Although long withstanding empirical evidence championed a dimensional rather than categorical view of personality disorders, the DSM-5 elected to retain its categorical model and included a secondary hybrid model comprised of personality traits and personality functioning. However, the PID-5's empirical foundations and preliminary evidence supporting its reliability and validity (e.g.,

Dawood, Thomas, Wright, & Hopwood, 2013; Hopwood et al., 2013; Miller et al., 2013) calls to the need for further research into its empirical and clinical utility.

Initial CFA results, using all 220 items indicated somewhat poor fit for the PID-5 model when using facet scores as indicator variables (TLI = .85, CFI = .89; RMSEA = .12). While model fit was suboptimal for the full item set, it is still remarkable that fit approached good fit for so many items. At the same time, modeling 220 items presents a considerable challenge (i.e., estimating parameters for 220 factor loadings, 220 error variances, and 15 latent variable correlations), along with the fact that it is often the case that not all items provide useful information (discrimination, extremity parameters). Accordingly, latent variable analyses for this research question were conducted using guidelines set forth by Maples et al. (2015) in which they provide promising initial validation for a PID-5 reduced item set. As seen in Table 4 nearly all fit indices for the PID-5 trait domains were improved when using the reduced set of PID-5 items (i.e., “PID-5r”), with the slight exception of PID-5 Negative Affect. Figures 4 through 13 display the CFAs for the PID-5 and PID-5 reduced sets.

Demographics Questionnaire

This basic demographics questionnaire contained questions assessing sex, race, education level, religious affiliation, marital status, and employment status. This demographics questionnaire was administered at the end of all materials.

Procedure

The current study’s materials were translated into electronic format and uploaded in an electronic survey using Qualtrics, an electronic survey creation and data collection program. Once uploaded to Qualtrics, a survey link was generated and distributed to participants. Participants in the college sample were recruited through the university’s SONA

system in exchange for extra credit. Participants in the general population sample were recruited through Amazon's M-Turk, an online marketplace where individuals complete tasks for various monetary amounts. This study paid general population participants \$2.00 for completing the survey materials.

All participants completed and signed an electronic consent form. Participants were then administered all measures in the study.

Data Analytic Procedure

Descriptive Statistics

Descriptive statistics were obtained for all participants on all variables. Means, standard deviations, kurtosis, and skewness statistics for all variables of interest were computed and compared in the total sample, as well as across both samples. These statistics are presented in Table 5 and Table 6.

Primary Data Analysis

The research questions and hypotheses were largely analyzed using Confirmatory Factor Analysis (CFA) for assessing latent measurement models, and Structural Equation Modeling (SEM) for gauging regression effects of the predictive latent variables (attachment, emotional regulation, mindfulness) on the PID-5r latent variables. Prior to conducting modeling analyses, internal consistency and unidimensionality were assessed using recommendations set forth by Clark and Watson (1995). This process is comprised of a two-step process using tetrachoric correlations instead of Pearson's product-moment correlations. Mean Inter-item Correlations (MICs) were calculated to assess scale homogeneity rather than Cronbach's alpha, as the latter is a measure of internal consistency instead of unidimensionality. Scale inter-item correlations

were then assessed to ensure sufficient clustering around the mean for specific composite variables.

A series of CFAs were conducted on all measures using MPlus version 6.1 (Muthén & Muthén, 1998-2010) to ascertain the factor structure of measures used to assess mindfulness, emotion regulation difficulties, attachment disturbance, and personality pathology. The Weighted Least Square Mean- and Variance- adjusted (WLSMV) estimator was used to derive parameter estimates and model fit indices because of its ability to accommodate categorical and continuous data (Muthén, du Toit, & Spisic, 1997), as well as departures from normality and thus provide robust parameter estimates. Hu and Bentler (1999) recommend a two-pronged approach to assessing SEM model fit in which both incremental (i.e., CFI) and absolute (i.e., RMSEA) fit indices are used to determine how well the proposed models reproduce the data being analyzed in the current study. For the current study traditional model fit index cutoffs were used (e.g., CFI ≥ 0.90 and RMSEA $\leq .08$) given that use of more strict indices can result in premature and somewhat unwarranted model rejections. More specifically, as model complexity increases, so does the difficulty of achieving conventional levels of model fit (Marsh, Hau, & Wen, 2004). To avoid falsely rejecting viable latent variable models, the use of conventional criteria is reasonable. Additionally, the Sample-Adjusted Bayesian Information Criterion (SABIC) will be calculated, as it is a useful measure of fit when models have either a large number of parameters or a small sample size (Sclove, 1987).

Next, an increasingly popular method for handling ordinal variables in SEM deemed “parceling” was utilized. Parceling is a procedure in which individual items are aggregated and used as indicator variables to represent latent constructs or factors (Little, Cunningham, & Shahar, 2002). There are well-documented advantages to using parcels (i.e., item composites) as indicator

variables of Latent Variables (LVs) once unidimensionality of the items has been demonstrated, rather than using individual items as indicator variables of these LVs (Little, Rhemtulla, Gibson, & Schoemann, 2013).

Specifically, multiple authors have suggested argued that parceling may ameliorate problems typically seen with item-level models, such as lower reliability and communality, correlated residuals, and multifactorial loadings (Little et al., 2002; Little et al., 2013). Furthermore, models using parceled data tend to be more reliable and parsimonious than their item-level model counterparts, even when data are non-normative (West, Finch, & Curran, 1995; Bandalos, 2002; Little et al., 2013). Lastly, parceling is also useful when sample sizes are limited by the number of parameter estimated, which improves the subject-to-parameter ratio (N:q ratio; Kline, 2011), thereby reducing sampling error and increasing the overall accuracy of the model's parameter estimates (Kline, 2011).

Various criticisms of parceling include those suggesting that parcels are not always created correctly or used in appropriate contexts (e.g., Bandalos & Finney, 2001). For example, Little et al. (2002) elucidates the potential issue of subjective contamination when assigning items to parcels groups. In order to remediate this issue, the current study assigned items to parcels using factor loadings derived from CFAs so as to create equally-weighted latent variables representing the unidimensional construct. While there are other criticisms of parceling (see Little et al., 2002), the use of this statistical method has become increasingly accepted by measurement experts when used appropriately (Little et al., 2013; Wupperman et al., 2008).

Research questions and hypotheses

Research Question 1 and Associated Hypotheses: How are attachment dimensions, personality, pathology, emotion regulation, and mindfulness related to demographic variables?

This research question used point-biserial correlations to explore how relevant demographic variables (e.g., race, sex) are related to attachment insecurity dimensions, emotion regulation difficulties, personality pathology trait domains, and mindfulness.

Research Question 2 and Associated Hypotheses: How are emotion regulation difficulties differentially associated with various PD pathology trait domains?

Point biserial correlations were calculated to determine how DERS facets were differentially related to PD pathology domains. It was hypothesized that all DERS facets would be positively associated with overall personality pathology scores, in addition to the five PID-5r domains.

Research Question 3 and Associated Hypotheses: How is mindfulness associated with dimensional personality pathology?

This research question also utilized SEM to investigate how mindfulness and personality pathology are interrelated. MAAS items were divided into three parcels (i.e., factor scores) based on CFA results, and used as indicator variables of a latent mindfulness variable. Likewise, PID-5r domain scores were used as manifest variables of a latent PD pathology factor. Point biserial correlations were also conducted to examine how mindfulness was differentially related to the PID-5r personality pathology domains. It was hypothesized that low levels of mindfulness would be associated with higher levels of overall personality pathology. Additionally, it was predicted that the PID-5r Negative Affectivity, Detachment, Antagonism, Disinhibition, and Psychoticism domains would all be negatively correlated with mindfulness.

Research Question 4 and Associated Hypotheses: How are attachment-anxiety and attachment-avoidance related to dimensional PD pathology?

This research question aimed to expand upon extant literature regarding how personality pathology and attachment disturbance are related. To address this question, point biserial correlations were conducted amongst the PID-5r domains and the two ECR-r attachment domains. It was hypothesized that high levels of attachment anxiety and avoidance would have statistically significant, positive associations with the PID-5r domains.

Research Question 5 and Associated Hypotheses: Do mindfulness and emotion regulation deficits mediate the relationship between attachment style and PD pathology?

This research question aimed to investigate whether varying levels of mindfulness and emotion regulation deficits served as significant mediators of the relationship between attachment disturbance and personality pathology. Given that previous research has shown mindfulness, attachment disturbance, and emotion regulation difficulties to be significantly associated with personality pathology, all study variables were employed into a full SEM to assess how each variable's relationship would be modified once combined into a single model.

Specifically, SEM mediation techniques were used to address the following hypotheses: It was predicted that the effect of insecure attachment style [*ECR-R latent variable*] on PD pathology [*PID-5r latent variable*] would weaken when controlling for ER [*DERS latent variable*]. Likewise, it was also expected that the effect of insecure attachment style [*ECR-R latent variable*] on PD pathology [*PID-5r*] would weaken when controlling for mindfulness [*MAAS latent variable*]. Lastly, it was hypothesized that when controlling for mindfulness and emotion regulation, the effect of insecure attachment style [*ECR-R latent variable*] on PD pathology [*total PID-5r score*] will be far weaker than exhibited than the effect of insecure attachment style [*ECR-R latent variable*] on PD pathology [*PID-5r latent variable*].

CHAPTER 3

RESULTS

Demographics

Demographic results are presented in Table 7. The total sample ($N = 1217$) was primarily female (71.7%), a consistent finding across both the student ($n = 946$) and general population ($n = 271$) samples (74.0% and 63.8% female, respectively). Chi-square analyses did indicate a meaningful difference in the proportion of females in the student sample compared to the proportion of females in the general population sample ($\chi^2 [1] = 10.72, p < .001$). The age of all participants ranged from 18 to 68 ($M = 23.9, SD = 9.18$). Analyses indicated a statistically significant difference ($t = 21.44, p < .001$) in the age of participants in the student sample (range = 18 – 57, $m = 20.33, sd = 3.4$) compared to the age of the general population participants (range = 19 – 68, $m = 36.13, sd = 12.0$). Analyses revealed significant differences existed between the two samples on most of the primary clinical variables, as observed in Table 6. Nevertheless, while there were differences in the levels of the study variables between the samples, the pattern of associations were highly similar across samples, and thus provided justification for combining them in subsequent SEMs. Moreover, in supplementary SEMs, conducted with each sample separately, the substantive pattern of findings remained unchanged.

The overall sample was primarily Caucasian (67.6%), followed by Hispanic (19.4%), Black (12.2%), and Asian (6.8%) individuals. Hispanic and Black individuals comprised a proportionately larger section of the student sample (22.3% and 13.4%, respectively) compared to the general population (9.2% and 7.7%, respectively). When comparing the two samples, chi-square analyses revealed statistically significant differences in the proportion of White ($\chi^2 [1] = 44.42, p < .001$), White Non-Hispanic ($\chi^2 [1] = 23.05, p < .001$), and Black ($\chi^2 [1] = 6.35, p =$

.01), and individuals in the student sample and the general population sample, while this finding was not replicated for individuals identifying themselves as Asian ($\chi^2[1] = .16, p = .69$).

The overall sample was predominantly single (84.7%) or married (12.2%). The majority of the student sample was either single (95.6%) or married (2.9%), whereas the general population possessed an almost equal proportion of single (46.9%) or married (44.6%) individuals. When asked whether participants considered themselves to be in a relationship, 56.5% of the total sample indicated they were currently in a relationship. There was a statistically significant difference in the proportion of general population individuals in a relationship (83.8%) compared to students (48.6%) who identified themselves as currently being in a relationship ($\chi^2[1] = 105.79, p < .001$).

Concerning the overall sample's level of education, 18.8% reported obtaining their high school diploma/GED or less, 52.2% attended some college, 12.2% obtained their 2-year Associate's degree, 12.8% obtained a Bachelor's degree, and 3.7% had post-Bachelor's degree experience.

Descriptive Statistics

Means, standard deviations, kurtosis, and skewness statistics for all variables of interest for the overall sample are presented in Table 5, whereas Table 6 compares these statistics across both samples.

Association between Demographic Variables and Attachment Dimensions, Mindfulness, Emotion Regulation Difficulties, and Personality Pathology

Point biserial correlation coefficients were conducted to investigate the association between various demographic variables (sex, race, marital status, and education) and aggregate scores on measures of attachment insecurity, mindfulness, emotion regulation difficulties, and

personality pathology. Results from these analyses utilizing the total sample are presented in Table 8 whereas results from these analyses across both samples are presented in Table 9.

Results yielded negligible to weak correlations between sex and attachment insecurity ($r = .01, p = .86$), personality pathology ($r = .11, p < .001$), mindfulness ($r = .05, p = .10$), and emotion regulation difficulties ($r = -.06, p = .05$). Analyses also revealed negligible correlations between race and attachment insecurity ($r = .08, p < .01$), personality pathology ($r = .05, p = .06$), mindfulness ($r = .04, p = .15$), and emotion regulation difficulties ($r = .03, p = .33$).

Analyses revealed small, statistically significant negative correlations between marital status and attachment insecurity ($r = -.13, p < .001$), personality pathology ($r = -.14, p < .001$), and emotion regulation difficulties ($r = -.11, p < .001$). A weak, positive association was discovered between marital status and mindfulness ($r = .09, p < .01$).

Lastly, analyses yielded small, statistically significant negative correlations between education and attachment insecurity ($r = -.17, p < .001$), personality pathology ($r = -.11, p < .001$), and emotion regulation difficulties ($r = -.11, p < .001$), whereas a weak, positive association was discovered between marital status and mindfulness ($r = .11, p < .001$).

As demonstrated in Table 9, few statistically significant differences in these correlation patterns existed between the general population and student samples. Given that the two samples did not demonstrate statistically significant differences on study variables, the two samples were combined for SEM analyses. Additionally, the lack of statistically significant differences between on the two samples on demographic variables warranted exclusion of these variables in final SEM analyses.

Associations between Emotion Regulation and Personality Pathology Domains

Manifest variable point biserial correlation coefficients were calculated to investigate how strongly the six DERS facets were associated with PID-5r domains. These correlations are presented in Table 10. The total DERS score correlated strongly with the total PID-5r score ($r = .65, p < .001$). Most notably, the total DERS score demonstrated strong, positive associations with the PID-5r Negative Affect ($r = .64, p < .001$), PID-5r Disinhibition ($r = .59, p < .001$), Detachment ($r = .53, p < .001$), and Psychoticism ($r = .53, p < .001$) domains. The overall DERS score demonstrated a relatively weaker, yet still moderately-strong positive association with the PID-5r Antagonism domain ($r = .34, p < .001$).

Results largely supported the second hypothesis, as a relatively consistent pattern of moderate to strong positive associations was revealed between the PID-5r domains and the DERS facets, specifically DERS Clarity (r s ranging from .30 – .52, mean $r = .44$), DERS Goals (r s ranging from .40 – .53, mean $r = .34$), DERS Impulse (r s ranging from .40 – .69, mean $r = .46$), DERS Nonacceptance (r s ranging from .29 – .53, mean $r = .42$), and DERS Strategies (r s ranging from .20 – .64, mean $r = .42$).

When comparing which PID-5r domain had the weakest relationship to each DERS facet, PID-5r Antagonism possessed the weakest relationships with the six DERS facets (r s ranging from .14 – .40, mean $r = .27$). Conversely, the PID-5r Negative Affect (r s ranging from .11 – .64, mean $r = .46$) and PID-5r Disinhibition (r s ranging from .24 – .59, mean $r = .44$) domains demonstrated the most consistent pattern of moderate-to-strong correlations to each DERS facet.

Associations between Mindfulness and Personality Pathology Domains

Manifest variable correlations were also conducted to further investigate how mindfulness is related to specific PD pathology domains, and are presented in Table 10. Support

was found for the third hypothesis, in that total PID-5r scores were negatively correlated with the overall mindfulness scores ($r = -.35, p < .001$), and individual PID-5r domains also demonstrated consistent, statistically significant negative correlations with overall mindfulness scores (r s ranging from $-.17$ to $-.38$, mean $r = .30$). Similar to research question two, the PID-5r Antagonism domain was only mildly correlated to the other proposed mediator, in this case mindfulness ($r = -.17, p < .001$).

SEM was used to determine the extent to which mindfulness scores predicted personality pathology. Model fit was excellent (CFI = .98, TLI = .97, RMSEA = .07) and the overall model, as seen in Figure 14, accounted for 16% of the variance in personality pathology scores. When using MAAS parcels as indicator variables of a latent mindfulness construct, analyses revealed that mindfulness was a statistically significant negative predictor of overall PID-5r PD pathology ($\beta = -.40, p < .001$).

Associations between Attachment Disturbance and Personality Pathology Domains

Manifest variable point biserial correlations were conducted amongst the five PID-5r trait domains and the two ECR-r attachment domains to determine the strength of association between PD pathology and attachment insecurity. As observed in Table 11, total PID pathology scores correlated strongly with total attachment insecurity scores ($r = .59, p < .001$). Support was found for the fourth hypothesis, in that ECR attachment anxiety demonstrated a positive association with the PID-5r Negative affectivity ($r = .68, p < .001$), Disinhibition ($r = .48, p < .001$), Detachment ($r = .47, p < .001$), Antagonism ($r = .31, p < .001$), and Psychoticism ($r = .48, p < .001$) domains. Results also revealed that ECR-r attachment avoidance was positively correlated with the Detachment ($r = .57, p < .001$), Negative Affect ($r = .29, p < .001$), and

Disinhibition ($r = .35, p < .001$), Antagonism ($r = .25, p < .001$), and Psychoticism ($r = .34, p < .001$) domains.

Overall, total PID-5r scores had a stronger association with ECR-r attachment anxiety scores ($r = .58, p < .001$) than with ECR-r attachment avoidance scores ($r = .44, p < .001$). This pattern held true when comparing the magnitude of correlations between ECR-r scales and each PID-5r domain, with the exception of the PID-5r Detachment domain. Moderate-to-strong statistically significant, positive correlations were revealed between ECR-r attachment anxiety scores and PID-5r domains (r s ranging from $.31 - .68$, mean $r = .48$). Results yielded moderate-to-strong statistically significant, positive correlations between total ECR-r attachment avoidance scores and PID-5r domains (r s ranging from $.25 - .57$, mean $r = .36$). Not surprisingly, attachment anxiety had the strongest relationship with PID-5r Negative Affect ($r = .68, p < .001$), and attachment avoidance was most strongly correlated with PID-5r Detachment ($r = .57, p < .001$).

Disturbances in Attachment, Emotion Regulation, and Mindfulness as Predictors of Personality Disorder Symptoms

The SEMs presented below were done separately for each PID-5r LV, to ascertain the degree of specificity versus generality of the predictive effects of the ECR, DERS, and MAAS LVs on the respective PID-5r LVs.

PID-5 Antagonism Model

SEM results using the PID-5r Antagonism domain as a latent variable are displayed in Figure 15. Overall fit for the model was good ($X^2[84] = 845.32$; CFI = .93, RMSEA = .08; SSA BIC = 108804.57), with the model accounting for 22% of the variance in PID-5r Antagonism.

Attachment disturbance (ECR LV) had a statistically significant positive direct effect on the PID-5r Antagonism LV ($\beta = .26, p < .001$). The ECR LV also had direct predictive effects on the DERS LV ($\beta = .71, p < .001$) and the MAAS LV ($\beta = -.40, p < .001$). The results also yielded a significant partial correlation between the DERS LV and the MAAS LV ($r = -.16, p < .001$), after accounting for the direct effects of the ECR LV on the DERS and MAAS LVs, respectively. The DERS LV had a statistically significant positive direct effect on PID-5r Antagonism LV ($\beta = .25, p < .001$). The MAAS LV did not have a statistically significant direct effect on the PID-5r Antagonism LV ($\beta = .01, p = .87$).

Dissecting the proportion of the predictive relation between the ECR LV and PID-5r Antagonism LV through low mindfulness (MAAS LV) and emotion regulation difficulties (DERS LV) (total indirect effect $\beta = .174, p < .001$) revealed that the majority of the total indirect effects was due to the ECR LV through the DERS LV ($\beta = .176, p < .001$) rather than the ECR LV through the MAAS LV ($\beta = -.002, p = .087$). In other words, attachment disturbance had both a direct effect on the Antagonism LV, as well as an indirect effect through the DERS LV.

PID-5r Detachment Model

SEM results using the PID-5r Detachment domain as a latent variable are displayed in Figure 16. Overall fit for the model was adequate ($\chi^2[84] = 1105.48$; CFI = .91, RMSEA = .10; SSA BIC = 110036.84), with the model accounting for 67% of the variance in PID-5r Detachment.

Attachment disturbance (ECR LV) demonstrated a statistically significant positive direct effect on the PID-5r Detachment LV ($\beta = -.55, p < .001$). Likewise, the ECR LV had significant direct effects on the DERS LV ($\beta = .72, p < .001$) and MAAS LV ($\beta = -.42, p < .001$). Results

also revealed a statistically significant partial correlation between the DERS LV and MAAS LV ($r = -.13, p = .001$) after controlling for the direct effects of the ECR LV on the DERS and MAAS LV's. The DERS LV had a statistically significant positive direct effect on the PID-5r Detachment LV ($\beta = .32, p < .001$), but the MAAS LV did not have a statistically significant direct effect on the PID-5r Detachment LV ($\beta = -.02, p = .57$).

An examination of the predictive relation between the ECR LV and PID-5r Detachment LV through emotion regulation difficulties (DERS LV) and low mindfulness (MAAS LV) (total indirect effect $\beta = .239, p < .001$) suggested that a larger proportion of the total indirect effects was due to the ECR LV through the DERS LV ($\beta = .232, p < .001$) compared to the ECR LV through MAAS LV ($\beta = .006, p = .57$).

PID-5r Disinhibition Model

SEM results using the PID-5r Disinhibition domain as a latent variable are displayed in Figure 17. Overall fit for the model was adequate ($\chi^2[71] = 815.96$; CFI = .92, RMSEA = .09; SSA BIC = 103364.32), with the model accounting for 46% of the variance in PID-5r Disinhibition.

Attachment disturbance (ECR LV) had a statistically significant positive direct effect on the PID-5r Disinhibition LV ($\beta = .29, p < .001$). The ECR LV also had significant direct effects on the DERS LV ($\beta = .71, p < .001$) and the MAAS LV ($\beta = -.40, p < .001$). As expected, the DERS and MAAS LVs were again mildly negatively (partially) correlated with each other ($r = -.16, p < .001$). The MAAS LV had a significant negative direct effect on the PID-5r Disinhibition LV ($\beta = -.15, p < .001$), and a significant direct effect on the PID-5r Disinhibition LV was observed via the DERS LV ($\beta = .37, p < .001$).

An examination of the relationship between the ECR and PID-5r LVs through emotion regulation difficulties (DERS LV) and low dispositional mindfulness (MAAS LV) (total indirect effect $\beta = .321, p < .001$) again suggested that the majority of the total indirect effects was due to the ECR LV through the DERS LV ($\beta = .261, p < .001$) rather than the ECR LV through the MAAS LV ($\beta = .06, p < .001$).

PID-5r Negative Affect Model

SEM results using the PID-5r Negative Affect domain as a criterion LV are displayed in Figure 18. Overall model fit was good ($\chi^2[98] = 876.52$; CFI = .93, RMSEA = .08; SSA BIC = 116118.46), with the model accounting for a statistically significant portion of the variance in PID-5r Negative Affect ($R^2 = .68$).

The PID-5r NA model yielded a more moderate, negative (partial) correlation between the DERS and MAAS LVs ($r = -.23, p < .001$), compared to the previous SEMs. The ECR LV demonstrated significant direct predictive effects on the DERS LV ($\beta = .63, p < .001$) and MAAS LV ($\beta = -.34, p < .001$), as well as the Negative Affect LV ($\beta = .43, p < .001$). The MAAS LV had a statistically significant negative direct effect on the PID-5r Negative Affect LV ($\beta = -.06, p = .01$), and significant effect on the PID-5r Negative Affect LV was observed via the DERS LV ($\beta = .46, p < .001$).

Similar to the other SEMs, an investigation of the predictive relation between the PID-5r Negative Affect LV and ECR LV through emotion regulation difficulties (DERS LV) and low mindfulness (MAAS LV) (total indirect effect $\beta = .32, p < .001$) suggested that a larger proportion of the total indirect effects was due to the ECR LV through the DERS LV ($\beta = .296, p < .001$) compared to the ECR LV through MAAS LV ($\beta = .02, p < .05$).

PID-5r Psychoticism Model

SEM results using the PID-5r Psychoticism domain as a latent variable are displayed in Figure 19. Overall model fit was excellent ($\chi^2[59] = 394.69$; CFI = .97, RMSEA = .07; SSA BIC = 98001.04), with the model accounting for a significant portion of the variance in PID-5r Psychoticism ($R^2 = .42$).

The ECR LV demonstrated significant direct effects on the DERS LV ($\beta = .71, p < .001$), MAAS LV ($\beta = -.40, p < .001$), and the Psychoticism LV ($\beta = .36, p < .001$). The MAAS LV had a significant negative direct effect on the PID-5r Psychoticism LV ($\beta = -.09, p = .002$), and the DERS LV ($\beta = .29, p < .001$) had a positive effect on the criterion LV. The DERS and MAAS LVs were again mildly negatively (partially) correlated with each other ($r = -.16, p < .001$).

An examination of the total indirect effects ($\beta = .24, p < .001$) suggested that the ECR LV through the DERS LV ($\beta = .21, p < .001$) exerted a larger influence on the PID-5r Psychoticism LV than did the ECR LV through the MAAS LV ($\beta = .04, p < .001$).

PID-5r Overall Model

Given the high degree of similarity of the SEM findings across the separate PID-5r models, as well as the significant associations among the PID-5r LVs (r 's = .60 - .94, p 's < .001), and overall PID-5r model was tested in which the total aggregate composite score for each PID-5r domain were used as indicators for an overall (PID-5r) personality disorder LV.

Figure 20 contains the standardized path coefficients obtained from the full SEM conducted to determine the direct predictive effects of attachment (ECR LV), emotion regulation (DERS LV), and mindfulness (MAAS LV) on PD (PID-5r) pathology, and also whether mindfulness deficits and emotion regulation difficulties mediated the relationship between

attachment disturbances and PD pathology. The SEM results indicated the overall PD pathology model demonstrated generally acceptable fit ($X^2[84] = 1257.85$; CFI = .90, RMSEA = .10; SSA BIC = 121358.67) and the ECR, DERS, and MAAS latent variables accounted for 64% of variability in overall PID-5r personality pathology.

The DERS LV had a significant positive direct effect on the overall personality pathology LV ($\beta = .34, p < .001$), and the MAAS LV had a significant negative direct effect on the overall PID-5r LV ($\beta = -.09, p = .001$). As with the separate SEMs, the ECR LV demonstrated a strong significant positive effect on the DERS LV ($\beta = .71, p < .001$), a significant negative effect on the MAAS LV ($\beta = -.40, p < .001$), as well as a moderately strong positive effect on the overall PID-5r LV ($\beta = .48, p < .001$). The results also yielded a statistically significant partial correlation between the DERS LV and the MAAS LV ($r = -.16, p < .001$), after accounting for the ECR LV effects on the DERS and MAAS LVs.

A partition of the total indirect effects in this model ($\beta = .27, p < .001$) revealed that the indirect effect of the ECR LV through the DERS LV on overall PID-5r scores ($\beta = .24, p < .001$) was greater than the indirect effect of the ECR LV through the MAAS LV on overall PID-5r scores ($\beta = .04, p = .001$).

To further assess if the ECR LV effect on the overall PID-5r LV is mediated by the DERS and MAAS LVs, a final SEM was tested which was identical to the previous overall PID-5r model, except that the DERS and MAAS LVs were specified to not have any predictive effects on the PID-5r LV. Model fit for this SEM was acceptable ($X^2[86] = 1291.47$; CFI = .90, RMSEA = .10; SSA BIC = 121384.44), however, it resulted in a larger BIC value compared with the previous overall PID-5r SEM (121358.67), and thus did not fit the data as well.

In other words, the model which included the direct effects of the DERS and MAAS on the overall PID-5r LV was able to better account for the data. Not surprisingly, the model which eliminated the effects of the DERS and MAAS LVs on the PID-5r LV resulted in a very strong positive effect of the ECR LV on overall PID-5r LV ($\beta = .85, p < .001$), and this differed substantially from the effect of the ECR LV on overall PID-5r LV ($\beta = .48, p < .001$) which included the effects of the DERS and MAAS on the criterion variable. As such, it is clear that the DERS and MAAS LVs partially mediate the effect of the ECR LV on the PID-5r LV, and at the same time, it is important to include the direct effects of the DERS and MAAS LVs on the PID-5r LV.

CHAPTER 4

DISCUSSION

Previous studies have found important associations between PDs and attachment disturbance (e.g., Agrawal et al. 2004; Nickell et al., 2002), which aids in understanding the fundamental interpersonal dysfunction involved in PDs. In addition to identifying attachment disturbances as integral to the development of such pathology, the extant PD literature suggests other processes, such as emotion regulation and dispositional mindfulness, may play a key role in the development of PDs (Fossati et al., 2012; Linehan, 1993; Scott et al., 2013).

In spite of the documented association between PDs, emotion regulation, and mindfulness, the associations of these constructs with attachment disturbance has yet to be fully explored. In part, this is likely due to the various issues with the polythetic, categorical, diagnostic system used by the third through fifth editions of the DSM (APA, 2000, 2013), which has been plagued by various issues such as significant within-diagnosis heterogeneity, high comorbidity rates among PDs, and temporal instability (Clark, 2007; Shea et al., 2002; Skodol et al., 2011; Widiger & Mullins-Sweatt, 2010; Zimmerman, 1994). These issues unfortunately make generalizing PD/emotion regulation/attachment literature difficult to generalize when trying to control for the vast amount of comorbid psychopathology among PDs.

The current study is one of the first studies to utilize a dimensional PD trait-based approach to understanding the effects of emotion regulation difficulties mindfulness, and attachment disturbance on the expression of overall PD pathology. Moreover, the current study aimed to help better understand how the separate Personality Inventory for DSM-5 (PID-5) PD trait domains were linked with maladaptive attachment processes and emotion regulation problems, as well as mindfulness. Finally, using two different types of samples (college & on-

line community), the current study examined how various demographic factors were associated with the main study variables.

How Are Attachment Dimensions, Personality Pathology, Emotion Regulation, and Mindfulness Related to Demographic Variables?

Sex

Results indicated that with respect to the overall sample, the association between sex and attachment disturbance was negligible and statistically insignificant. When separating the two samples, this association continued to be weak and negligible in the student sample, while the association between sex and attachment disturbance was slightly stronger and statistically significant in the general population sample. Although statistically significant, the negligible magnitude suggests that the expression of attachment avoidance and attachment anxiety do not significantly differ across sexes. This finding contradicts findings from a previous meta-analysis conducted by Del Giudice (2011), in which men were found to have higher levels of attachment avoidance and women were found to have higher levels of attachment anxiety. However, it is worth noting that this age distribution in this meta-analysis largely favored young adults, and thus may not completely capture the relationship between age, sex, and attachment disturbance across the lifespan.

Rather, the current study's finding better replicates results from a recent study examining attachment dimensions in 86,555 individuals varying in age and sex (Chopik, Edelstein, & Fraley, 2013). Specifically, the authors found that although sex was a statistically significant predictor of attachment anxiety and avoidance, the magnitude of the effect sizes were minimal ($\beta = .03$). Interestingly, the authors noted that their data supported the notion that men and women

appear similar in their attachment patterns, especially when considering the interaction between age and sex.

Although statistically significant, most associations between sex and PD pathology were weak, suggesting that the expression of PD pathology, as measured by the PID-5r trait domains, minimally varies across sexes. Again, there appeared to be little variability in the magnitude of association between sex and PID-5r domains when comparing the student and general population samples. Interestingly, one of the higher correlations existed between PID-5r Antagonism in sex, perhaps pointing to sex-related differences in the expression of externalizing behaviors that are strongly associated with the PID-5r Antagonism (Maples et al. 2015).

Results also revealed a negligible relationship between dispositional mindfulness and sex, again suggesting little difference in levels of dispositional mindfulness across both sexes in the overall sample. This small association was replicated in both student and general population samples, signifying that this pattern did not differ within each sample. Such a pattern was expected, as multiple previous studies have failed to find significant sex differences in dispositional mindfulness (e.g., Soysa & Wilcomb, 2013).

Analyses revealed a weak, nonsignificant association between sex and overall emotion regulation difficulties in the total sample, as measured by the DERS. Negligible associations between sex and emotion regulation difficulties were also noted within each subsample. As with mindfulness, this finding is not unexpected given that past research has reported limited cross-sex differences in DERS scales (e.g., Gratz & Roemer, 2004).

Race, Marital Status, and Education

Results revealed very weak associations between race and attachment disturbance, personality pathology, dispositional mindfulness, and emotion regulations difficulties. That is,

data from the current study do not suggest a meaningful relationship between race and the aforementioned variables exist. Notably, this finding was discovered across both samples, in addition to the overall sample.

Although statistically significant, the associations between marital status and attachment disturbance, personality pathology, mindfulness, and emotion regulation difficulties were very weak and often negligible, a pattern that held true across both samples. Similar to other findings within this research question, this finding does not support the notion that significant differences exist between marital status and attachment disturbance, PD pathology, mindfulness, and emotion regulation difficulties.

The associations between education and attachment disturbance, PD pathology, mindfulness, and emotion regulation were again very weak, a finding that was discovered in the overall sample, in addition to both student and general population samples.

How Are Emotion Regulation Difficulties Differentially Associated with Various PD pathology Trait Domains?

Strong support was found for the hypothesis that all DERS facets would be positively associated with overall personality pathology scores. Notably, all of the DERS facets, with the exception of DERS Awareness, demonstrated moderate-to-strong associations with overall personality pathology. Results also supported the prediction that the PID-5r domains would all be significantly positively correlated with all of the DERS facets. Although correlations between the NA and Detachment domains with the DERS facets reached statistical significance, both domains varied in their degree of association with the DERS facets.

With the exception of the DERS Awareness scale, the NA domain consistently demonstrated a strong association with all of the other DERS facets. This finding is in-line with

previous studies reporting that individuals high in negative affect struggle with emotion regulation (Salsman & Linehan, 2012; Scott et al., 2013). Specifically, those with prominent-NA traits such as hostility and emotional lability also struggle to control emotional impulses, fully accept and experience their emotions, and subsequently access emotion regulation strategies (Hopwood, Schade, Krueger, Wright, & Markon, 2013). Notably, the NA domain correlated most strongly with the DERS Strategies facet, which likely reflects the pessimistic, fatalistic, and sometimes shameful attitudes that individuals with high levels of negative affect may experience when emotionally dysregulated (Gratz & Roemer, 2004).

The PID-5r Detachment domain was most strongly related to the DERS Clarity facet, suggesting that high-scorers on the PID-5r Detachment domain likely experience difficulty being aware of what they are feeling. This finding is not surprising, since individuals high in trait Detachment possess high levels of personality traits such as anxiety, depression, and intimacy avoidance. Thus, one could propose that those high in Detachment are possibly emotionally underactive, thereby limiting the chance that emotion regulation strategies could be accessed. Ultimately, individuals who have a deficit in the ability to notice and identify negative emotion may be less likely to employ emotion regulation strategies when needed, and therefore would also likely be prone to prolonged periods of chronic negative affect.

Interestingly, the correlation between PID-5r NA and DERS Strategies was threefold in its magnitude compared to the association between PID-5r Detachment and DERS Strategies. This finding could suggest that individuals who possess strong and pervasive NA traits likely lack the ability to utilize emotion regulation strategies, as in BPD (Salsman & Linehan, 2012). Overall, results from this research question demonstrate the generalized emotion regulation impairment that individuals with significant personality pathology possess.

How Is Mindfulness Associated with Dimensional Personality Pathology?

As previously mentioned, much of the literature aimed at understanding the relationship between mindfulness and personality pathology has primarily focused on BPD (e.g., Sauer-Zavala & Barlow, 2014; Wupperman et al., 2008), with the exception of one study whose aim was to examine mindfulness in other DSM-IV PDs in an Italian sample (Fossati et al., 2012). The current study represents one of the first attempts to broaden the scope of focus from categorical diagnoses to dimensional maladaptive personality traits that subsume PDs far beyond BPD in a student and general population sample.

Findings supported the hypothesis that low levels of mindfulness would be associated with higher levels of overall personality pathology. Such a finding affirms extant research showing low dispositional mindfulness is significantly related to both psychological symptoms (e.g., depression, somatization) and personality traits (e.g., Neuroticism), that underlie many PDs (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006).

A moderate effect size was discovered for the PID-5r Negative Affect, Detachment, Disinhibition, and Psychoticism domains, while a weaker small effect size was revealed for the Antagonism domain. This finding was not unexpected, given previous research showing moderate relations between categorical PD diagnoses and lower levels of mindfulness (Fossati et al., 2012). However, the current study extends these findings by demonstrated the relevance of mindfulness in personality pathology at a finer level.

The finding that PID-5r Psychoticism was associated with lower levels of mindfulness is notable. In part, mindfulness deficits are likely the result of a preoccupation with internal stimuli, interpersonal paranoia, disorganized thought patterns, and general deficits in reality testing (Compton & Broussard, 2009). Theoretically, all of these experiences would create

challenges for individuals attempting to be in-the-moment, but it would be interesting for further research to directly address this issue.

Lastly, SEM results further bolstered these findings by demonstrating that higher levels of overall PD pathology significantly predicted lower levels of dispositional mindfulness. Taken together, analyses highlight the notion that mindfulness is not only associated with forms of PD pathology typically characterized by emotional lability and impulsivity (e.g., BPD), but that mindfulness deficits also underlie many other variants of personality pathology less overtly related to mindfulness (e.g., Schizoid and Antisocial PD).

How Are Attachment-Anxiety and Attachment-Avoidance Related to Dimensional PD Pathology?

Results supported the hypothesis that high levels of attachment anxiety would be positively correlated with all of the PID-5r domains. Interestingly, not only were all five PID-5r domains positively associated with ECR attachment anxiety, but these associations were predominately moderate-to-large in magnitude. Such a finding likely points to the notion that most, if not all, individuals with significant levels of PD pathology also possess significant disturbances in attachment security.

Findings supported the hypothesis that high levels of attachment avoidance would be positively correlated with the PID-5r Detachment, Negative Affectivity, and Disinhibition, and Antagonism, and Psychoticism domains. Overall, the PID-5r domains had uniform relations with the ECR-Anxiety and ECR-Avoidance dimensions. Given that the current study represents the first application of the PID-5r to attachment dimensions, understanding the differential relationships by domain will be most fruitful.

The ECR attachment anxiety dimension possessed the strongest relationship with PID-5r NA domain, a finding that is not surprising since one must theoretically possess anxiety if they are endorsing attachment-related anxiety (e.g., abandonment fears). Additionally, the strong association is also likely due to the strong link between NA and disorders subsumed largely by traits such as anxiousness, attachment insecurity, and submissiveness (Picardi, Caroppo, Toni, Bitetti, & Di Maria, 2005; Scott et al., 2009).

Although the PID-5r Psychoticism trait facets and their subsuming items appear to lack overt, significant overlap with ECR attachment anxiety items, results revealed a strong association between attachment anxiety and PID-5r Psychoticism. Though causality is limited due to the correlational nature of this finding, past research on attachment trauma and psychosis could partially explain this association. Specifically, some research has suggested that some psychotic experiences (e.g., delusional thinking, interpersonal paranoia) are related to childhood trauma (Greenfield et al., 1994). Depending on the nature of the trauma, it could be possible that a significant attachment trauma in early childhood could detrimentally affect one's internal working model, a result that would likely produce a trajectory of attachment anxiety and/or avoidance that could make individuals more vulnerable to misperceptions of reality.

Do Mindfulness and Emotion Regulation Deficits Mediate the Relationship between Attachment Style and PD Pathology?

It is important to again emphasize the notion that attachment behaviors are stable throughout the lifespan (Bowlby, 1973, 1980; Morris, 1982) and often appear before the emergence of PD-like behaviors. That is, empirical evidence has suggested childhood attachment style has strong links with attachment style in adulthood (e.g., Fraley, 2002), and these styles form a strong basis to further interpersonal relationships. Although it is important to

note that inferring causality in the absence of longitudinal data is ill-advised, evidence suggesting that personality pathology develops in part due to maladaptive attachment experiences in early childhood suggests that attachment insecurity may somewhat precede the development of PD pathology traits, a viewpoint that is being increasingly supported by attachment-based personality disorder research (Bartholomew, Kwong, & Hart, 2001; Brennan and Shaver, 1998; Mack et al., 2011; Levy et al., 2006). This argument is further strengthened by numerous studies suggesting that that attachment style is predictive of significant psychopathology later in adulthood (e.g., Bartholomew & Horowitz, 1991; Platts, Tyson, & Mason, 2002).

PID-5r Overall Model

Strong support was found for the notion that emotion regulation and mindfulness deficits partially explain the relationship between attachment disturbance and PD pathology, as the aggregate PID-5r mediation model accounted for approximately 64% of the variance in PD pathology (shown in Figure 20). Overall, these findings point to the large contributions that attachment disturbance and emotion regulation impairments play in the development and manifestation of various pathological personality domains. Exploring these effects within each domain will help lay conceptual framework for this discussion section.

Antagonism

Results indicated that attachment insecurity, emotion regulation deficits, and mindfulness accounted for a significant proportion of variance (22%) in the PID-5r Antagonism LV. Individuals with high levels of PID-5 Antagonism are characterized by interpersonal callousness, self-centeredness, manipulativeness, grandiosity, and attention-seeking tendencies (APA, 2013; Crego & Widiger, 2014). Not surprisingly, emerging research using the PID-5 has found Antagonism to be highly related to PDs such as antisocial personality disorder, psychopathy, and

narcissistic personality disorder (Fossati, Krueger, Markon, Borroni, & Maffei, 2013; Miller, Gentile, Wilson, & Campbell, 2013). Additionally, previous research by Anderson et al. (2015) has suggested that the PID-5 Antagonism domain captures many personality-based aspects of externalizing psychopathology, including antisocial behavior, aggressiveness, grandiosity, and interpersonal hostility, all of which could be theoretically related to attachment disturbances.

SEM analyses indicated attachment insecurity predicted higher levels of PID-r Antagonism. As previously mentioned, the role of attachment insecurity in disorders characterized by Antagonism (e.g., psychopathy, ASPD) and its subsuming traits is quite limited. That being said, results from the fourth research question interestingly revealed a similar relationship in magnitude between PID-r Antagonism and both attachment anxiety and avoidance. Interestingly, SEM results did not significantly differ when the two attachment dimensions were modeled separately.

On the one hand, results from the fourth and fifth research questions support past research implicating a strong positive correlation between attachment avoidance and Antagonism traits (e.g., antisociality) related to externalizing psychopathology. This finding corroborates past research and theory suggesting that many aspects of externalizing psychopathology, such as grandiose self-views and antisocial behaviors, are indicative of the emotional detachment and excessive self-reliance associated with attachment avoidance (Bowlby, 1973; Sable, 1997).

From an emotion regulation standpoint, individuals high in attachment avoidance are prone to utilize deactivating attachment strategies, such as denial of vulnerability or threat, emotional disavowal, or overt grandiosity as means of maintaining a cohesion of self that appears invulnerable to others. Therefore, one might propose that the manipulative, grandiose, and callous behaviors subsuming Antagonism may partially occur as a byproduct of having the

ability to deny vulnerability or emotions such as guilt or shame, a strategy that likely permits the individual to act in a self-serving or self-enhancing manner, as would be expected among individuals high in Antagonism.

On the other hand, the current study's findings also affirm past research suggesting that attachment anxiety is also related to personality disorders characterized by high levels of Antagonism, such as antisocial, narcissistic, and schizotypal personality disorders (Cooper et al., 1998; Diamond & Meehan, 2013; Tiliopoulos, & Goodall, 2009). In part, the mixed correlational pattern observed in the fourth research question likely points to the mixture of interpersonal patterns that loaded separately onto the attachment anxiety and avoidance factors. For instance, the Attention-Seeking trait items (e.g., *"I love getting the attention of others"*) are more likely related more to anxious attachment, whereas the Callousness trait items (e.g., *"I don't care if my actions hurt others"*) are more indicative of the emotionally aloof and interpersonally-hostile tendencies seen with avoidant attachment (Lopez, 2009).

Although Antagonism was significantly related to both attachment anxiety and avoidance, the observation remains that individuals with high levels of Antagonistic behavior likely possess broad insecure attachment patterns, which leave such individuals prone to suppressing, misinterpreting, and misunderstanding emotional stimuli (Mikulincer & Shaver, 2007). Although highly avoidant individuals are able to create a façade of imperturbability, research actually suggests this emotional stimuli can become maladaptively transmuted into somatic complaints, hostility, and depression (Shaver & Hazan, 2004).

Results also demonstrated that Antagonism was strongly related to impulse control difficulties, while only moderately-mildly related to other DERS facets such as Clarity, Goals, and Awareness. In addition, SEM results from the fifth research question indicated that emotion

regulation difficulties significantly predicted increases in PID-r Antagonism. Taken together, these finding suggests individuals with prominent Antagonism traits suffer from poor impulse control and lack the ability to regulate emotion before dysregulation occurs. This notion is supported by past research examining the centrality of impulsivity and poor emotion regulation in disorders characterized by Antagonistic traits, such as antisocial personality disorder, psychopathy, and narcissistic personality disorder (Fossati et al., 2013; Miller et al., 2013).

Conceptually, one could propose that many aspects of Antagonism (e.g., callous, manipulative, or self-serving behavior) require the suppression of negative emotions such as guilt or shame that prevent most individuals from engaging in such behavior. Moreover, it is possible that those high in Antagonism and attachment avoidance may have a lower awareness of these negative affective states, potentially through the use of deactivation strategies that would limit contact with emotions (e.g., shame) that would ultimately require them to use emotion regulation strategies. Such a notion may explain the limited relationship between the goal-directed behavior DERS facet and the Antagonism domain, as their ability to affectively detach may serve as functional in situations where emotion would often impair decision making for most people.

Detachment

General support was found for the PID-r Detachment domain, and approximately 67% of its variance was captured by the attachment, emotion regulation, and mindfulness variables in this mediation model. Specifically, results indicated that both attachment disturbance and emotion regulation deficits predicted increased levels of PID-5r Detachment. Importantly, mindfulness became a nonsignificant predictor when entered into the model, whereas this finding was not replicated in all other PID-r domain models. By definition, individuals high in

Detachment have significant depressive and anhedonic tendencies, a constricted range of affective experiences, and an inclination to avoid interpersonal intimacy (Anderson et al., 2015; Fossati et al., 2015).

Findings from the fourth and fifth research question found the Detachment domain to be strongly related to the attachment avoidance dimension, suggesting that individuals high in PID-r Detachment are likely to maintain distance in relationships, be reluctant to rely upon others for emotional support, and suppress emotional responses to attachment threats (Bowlby, 1973; Shaver & Mikulincer, 2002). This finding is supported by research showing attachment avoidance is moderately correlated with the suppression of the both positive and negative affective states ($r = .47$; Gross & John, 2003). Additionally, other research have discovered that avoidant individuals are more skilled at distracting themselves from distressing material to prevent negatively-valenced emotional stimuli (e.g., abandonment anxiety) from entering conscious awareness (Fraley, Garner, & Shaver, 2000).

Although the function of this strategy likely varies based on context, a detached and indifferent attitude toward interpersonal relations could serve to protect an individual from re-experiencing the pain, frustration, anxiety, and a sense of loss that likely necessitated the creation of such a strategy. A key example of this strategy can be understood through Bowlby's "compulsive self-reliance," in which individuals struggles to mask the inability to establish interpersonal intimacy with a masquerade of self-sufficiency, so as to diminish the suppress emotion that could arise from the formation and loss of attachment objects (Bowlby, 1973; Shaver & Fraley, 2008). In turn, these individuals end up in a cycle wherein their reluctance to develop attachments result in feelings of loneliness, depression, and interpersonal withdrawal, all of which likely amplify their attachment avoidance and emotional distance from others.

Relatedly, emotion regulation difficulties significantly predicted increased levels of PID-r Detachment traits, suggesting that when feeling “upset,” the highly-detached individual is likely experience difficulties becoming aware of negative emotion and accessing adaptive regulatory strategies to reduce the negative emotion(s). This suggestion is supported by previous findings linking a lack of emotional awareness and maladaptive regulatory strategies to aspects of psychopathology strongly correlated with the PID-r Detachment, such as anxiety, depression, and rejection sensitivity (Fowler et al., 2014; Johansen, Normann-Eide, Normann-Eide, & Wilberg, 2013; Van Rheezen, Murray, & Rossell, 2015; Wei, Russell, Mallinckrodt, & Vogel, 2007).

Taken together, these findings suggest those with high levels of Detachment are not only likely to be have difficulty accessing, experiencing, and regulating strong negative emotions, but they possess a propensity to utilize maladaptive regulation strategies, especially when the affective experience is based in the context of interpersonal relationships. This notion is further bolstered by studies suggesting attachment security is positively associated with the awareness, acknowledgement, and open sharing of emotional responses, rather than suppressing or otherwise disavowing emotion (Keelan, Dion, & Dion, 1998; Mikulincer & Orbach, 1995).

Disinhibition

SEM results demonstrated that both emotion regulation difficulties and low dispositional mindfulness served as mediators of PID-5r Disinhibition, as the model accounted for approximately 46% of the variance in observed Disinhibition scores. As conceptualized by the PID-5, those high in Disinhibition are likely to sheer responsibilities, engage in risky and impulsive behaviors, have attention and concentration difficulties, and be prone to acting on present-moment thoughts, feelings, and external stimuli without consideration of consequences

(APA, 2013). Other corollaries of PID-5 Disinhibition traits and include emotional dysregulation, physical aggression, suicidality, domineering behavior, and low Conscientiousness (Crego, Gore, Rojas, & Widiger, 2015; Yalch & Hopwood, 2016).

SEM results indicated that individuals with prominent Disinhibition tendencies possess marked impairments in the ability to think, plan, and act accordingly in the presence of distressing emotional stimuli. These findings corroborate extant literature showing that disorders characterized by traits underlying Disinhibition, such as ASPD or BPD, also possess marked emotion regulation difficulties and tendencies to engage in impulsive behavior (Linehan, 1993; Scott et al., 2013). Such findings are not unexpected, given previous research has linked poor emotional control with the impulsivity, irresponsibility, and risky behaviors that characterize these PDs (Cyders et al., 2007; Tull et al., 2010).

Given that Disinhibition is fundamentally defined by impulse behavior and a lack of forethought, it is no surprise SEM analyses revealed that lower levels of mindfulness predicted higher levels of Disinhibition. These findings do expand on previous researchers finding associations between mindfulness and PDs characterized by Disinhibition, such as BPD (e.g., Fossati, Vigorelli Porro, Maffei, & Borroni, 2012). It is likely that the function and expression of low mindfulness in highly-disinhibited individuals varies upon the clinical syndrome manifesting the low levels of mindfulness. For instance, low mindfulness may be expressed through reckless and impulsive behavior among those with antisocial tendencies (Velotti et al., 2015), while deficits in core mindfulness are often expressed through mood instability, aggressiveness, and self-injurious behavior in BPD (e.g., Dougherty, Bjork, Huckabee, Moeller, & Swann, 1999; Hansenne et al., 2002). Nonetheless, current findings do suggest highly disinhibited individuals likely possess low levels of dispositional mindfulness.

SEM results also indicated that higher levels of attachment insecurity were predictive of increased levels of Disinhibition traits. Extant research has not examined the direct effect of attachment disturbances on Disinhibition is limited, but rather on disorders typified by high levels of Disinhibition (e.g., ASPD). Although longitudinal studies should directly address the influence of attachment insecurity on the development of Disinhibition, it has been proposed that individuals who receive warm, attentive, and sensitive care from attachment figures develop more enhanced emotion regulation and impulse control strategies, in addition to higher levels of mindfulness, both of which could limit the expression of Disinhibited behavior (Ryan, Brown, & Creswell, 2007). Nonetheless, the finding that emotion regulation difficulties remained a significant predictor of Disinhibition, in spite of being included in the model with attachment insecurity, suggests that both emotion regulation deficits and attachment disturbance each contribute to the development of personality traits that subsume Disinhibition.

Negative Affect

Results demonstrated that both deficits in emotion regulation and mindfulness serve as significant mediating factors in the relationship between attachment insecurity and Negative Affect (NA), as the model accounted for approximately 68% of the variance in observed NA scores. Explicating the predictive components of the model yield important findings regarding the role of attachment insecurity and emotion regulation in the manifestation of NA traits. High NA-scorers are hypothesized to experience high emotional lability, anxiety and depression, and to be preoccupied with issues of interpersonal separation and abandonment (APA, 2013).

SEM results found higher levels of attachment insecurity to predict increased levels of NA, a finding that has been well-documented in attachment studies and attachment theory (Feeney, 1998; Mikulincer & Shaver, 2008). From an attachment perspective, individuals with

high attachment anxiety are preoccupied with interpersonal cues related to rejection or abandonment, as their internal working models are characterized by low self-worth and idealization of others. In interpersonal relationships, they paradoxically possess fear about surviving without being a relationship while also worrying others will not be able to match their level of desired intimacy (Bartholomew & Horowitz, 1991), an interpersonal pattern frequently observed in disorders characterized by high NA, such as dependent, avoidant, and borderline personality disorder (Bartholomew et al., 2001).

The current study also demonstrated that emotion regulation deficits and low mindfulness were associated with higher levels of NA, likely elucidating the idea that individuals with poor emotion regulation strategies experience chronic levels of NA-related experiences such as rumination, depression, low self-worth, guilt, and shame (Saffrey & Ehrenberg, 2007). Moreover, these findings affirm previous research finding that aspects of NA, such as emotional lability and hostility, are typically inversely associated with high levels of mindfulness (Brown & Ryan, 2003).

Psychoticism

Results demonstrated that both emotion regulation and mindfulness serve as significant predictive factors of PID-r Psychoticism, as the model accounted for approximately 42% of the variance in observed Psychoticism scores. As with the other PID-5r domain mediation models, it is important to call attention to the fact that attachment insecurity, emotion regulation difficulties, and mindfulness all remained significant predictors of PID-5r psychoticism. That is, each of these constructs contributed to the prediction of PID-5r Psychoticism in this model.

Psychoticism, as defined by the DSM-5 (APA, 2013), is characterized by unusual cognitive processes or experiences, odd or unusual behavior, and unusual beliefs and

experiences. High-scorers on the PID-5 Psychoticism domain are likely to possess eccentric thought processes, be susceptible to misperceiving environmental stimuli, experience and interpret certain events (e.g., bodily sensations) with which others may not readily identify, and lack meaningful close relationships.

It is of particular interest is the finding that attachment insecurity predicted higher levels of Psychoticism. Given that research exploring the interrelations between the PID-5 and attachment dimensions is sparse, the current findings have the potential to significantly contribute to literature examining attachment disturbance and psychotic phenomena. Although the severity of psychotic experiences in individuals with diagnosable schizophrenia certainly do not equate to individuals with personality patterns consistent with Psychoticism, it is plausible to conceptualize psychotic phenomena as being on a continuum with normal experiences (Berry, Wearden, Barrowclough, & Liversidge, 2006). This notion is furthered by various studies finding strong overlap between Schizotypal personality traits and symptoms commonly reported in Schizophrenia (Claridge & Davis, 2003). Thus, using the current study's findings may help deepen the understanding of psychotic-like phenomena (e.g., delusional beliefs) in a non-clinical sample.

The current study's findings suggested that attachment insecurity (i.e., both avoidance and anxiety) predicted higher levels on the PID-r Psychoticism domain. Traditionally, research has suggested that individuals with schizophrenia-spectrum disorders and similar personality traits fall into the "unresolved" attachment style (Ainsworth & Eichberg, 1991; Tyrrell and Dozier, 1997), one in which the individual's attachment behavior is characterized by a disorganized combination of attachment anxiety and avoidance strategies that appear odd or otherwise peculiar (Hesse & Main, 2000). The current study's results demonstrated that

attachment anxiety and avoidance had similar predictive ability of PID-r Psychoticism, supporting the notion that individuals high in Psychoticism may present with both attachment anxiety and avoidance strategies (e.g., proximity-seeking vs. emotional detachment, respectively).

The finding that attachment avoidance was linked with higher levels of psychoticism is supported by previous findings reporting associations between attachment insecurity and psychotic processes, such as paranoia and hallucinations (Pickering, Simpson, & Bentall, 2008; MacBeth, Schwannauer, & Gumley 2008), with some researchers directly identifying an avoidant attachment style as a specific risk factor the development of psychotic symptoms (Berry, Barrowclough, & Wearden, 2007; Berry, Barrowclough, & Wearden, 2008). Moreover, other researchers have suggested that paranoia is largely created and maintained through a negative internal working model of others, a key component of avoidant attachment styles (Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001).

Relatedly, the current study also suggested that attachment anxiety was predictive of higher levels of Psychoticism. This finding is again supported by past research linking psychotic phenomena with clinical correlates of attachment anxiety, such low self-esteem (Ringer, Buchanan, Olesek, & Lysaker, 2014), interpersonal dysfunction (Berry et al., 2008), trauma (Picken et al., 2010), and depression (Cavelti et al., 2011). Given that attachment anxiety is strongly driven by a relational preoccupation and sensitivity to rejection cues (Mikulincer & Shaver, 2002), it is possible that these proclivities coalesce with low self-esteem to create symptoms that have been linked to psychosis, such as paranoia (MacBeth et al., 2008).

The current study also demonstrated that deficits in emotion regulation and mindfulness both predicted higher levels of PID-r Psychoticism. Moreover, findings from the second

research question suggested that individuals high in Psychoticism possess deficits in core mindfulness and marked impairments in emotion regulation abilities. Other research has also demonstrated that psychotic experiences are associated with deficits in emotional awareness, expressivity, and the use of emotion regulation strategies such as cognitive reappraisal (Grezellschak, Lincoln, & Westermann, 2015; Harrison et al., 2001). It has been long documented that many of the experiences that characterize psychoticism (e.g., delusions, paranoia) are often accompanied by strong negative affect such as fear, shame, depression (e.g., Birchwood, 2003; Thewissen et al., 2011). As such, the current study's results suggest general as well as specific relations between emotion regulation deficits and psychoticism, in that these emotion regulation deficits likely play a large part in the development of psychotic-like personality traits. This principle is partially supported by emerging research has shown the PID-5 Psychoticism domain to be related to emotional dysregulation, social avoidance, and restricted emotional expression (Bastiaens et al., 2016).

Conclusions

The overall goal of the current study was to investigate the extent to which deficits in mindfulness and emotion regulation would contribute, along with attachment disturbance, in the prediction of PD pathology. Results supported this notion, as deficits in emotion regulation abilities and dispositional mindfulness were associated with higher levels of pathological personality traits; while attachment disturbance was often equal if not more in magnitude in predicting PD pathology.

Another goal of this study was to further discern how various aspects of attachment disturbance (i.e., both attachment avoidance and anxiety) are related to newer conceptual models of personality pathology. As previously mentioned, results showed that attachment insecurity

demonstrated a significant relationship with all PID-5r domains. Such a finding strongly supports the growing notion that attachment traumas and other ruptures, which by definition occur largely in early childhood, are strong predictors of adulthood personality pathology. Although pinpointing the exact pathway from attachment ruptures to personality pathology is difficult, the study provides evidence for claims that early attachment relationships likely serve as a significant foundation upon which affective regulation skills are built (Mikulincer & Shaver, 2008; Weinfield et al., 1999).

The current study also represents one of the first attempts to assess emotional regulation impairment from a trait-based perspective. Findings revealed that PID-5r domains demonstrated both specific and general relations to the DERS, again documenting the principle that even disorders less overtly related to affective impairments (e.g., Paranoid PD vs. Borderline PD) still show gross impairments in the ability to notice, modulate, or accept strong negative affect. Given the evidence that emotion regulation underlies a wide variety of personality pathology, future studies should continue to focus on the ability of emotion-focused psychotherapy to determine whether teaching emotion regulation skills can help one less the permeability of core personality pathology traits onto various domains of functioning.

Lastly, the current study aimed to understand the extent to which mindfulness deficits underlie various pathological personality traits. Results found mindfulness deficits to be moderately associated with higher levels of personality pathology, but this effect was only notable in certain aspects of latent PD pathology such as Disinhibition, in addition to NA and psychoticism to a lesser extent. Additionally, it is interesting that the partial correlation between the MAAS and DERS domains remained statistically significant after accounting for variance due to the ECR LV. Taken together, these findings might suggest that teaching mindfulness skills

could help limit the pervasive progression of emotion regulation dysfunction and attachment-related impairment. Moreover, it is possible that mindfulness plays an indirect role in the modification of longstanding attachment-related issues and associated problems with emotion regulation, but it will be important for future research to address this hypothesis and further parse these constructs' influence on the manifestation of PD traits.

Regardless, the current study emphasizes the importance of mindfulness interventions among individuals who possess high levels of maladaptive PD traits. In fact, multiple studies have found that mindfulness has been shown to be moderately successful in lessening emotion regulation corollaries, such as acceptance of emotion and impulse control problems that typically plague individuals with PD pathology (Linehan, Miller, & Addis, 1989; Van Dijk, 2012). For instance, previous studies have found mindfulness strategies can prevent emotional interference with cognitions, reduce amygdala hyperactivity and subsequent negative mood states, in addition to facilitating more hedonistic mood states (Creswell et al., 2007; Jain et al., 2007; Jha, Krompinger, & Baime 2007; Ortner, Kilner, & Zelazo 2007). Accordingly, findings suggest that focusing on the implementation of mindfulness interventions is an important treatment target.

Although not a primary aim of the current study, results from the PID-5r CFA and SEM analyses provide good support for the PID-r model first tested by Maples et al. (2015). Such a finding is an important contribution because the DSM-VI PD workgroup will likely use various PID-5r study findings to further advocate for previously-proposed revisions for the DSM-5 PD section arguing for a trait-based approach to PD measurement. By providing results that demonstrate strong validity of such a model (i.e., via PID-5r CFAs), the current study significantly contributes to the field's continued attempt to validly and reliably assess personality pathology.

Taken together, the current study significantly contributes to the attachment-PD literature by highlighting other important clinical constructs that underpin personality pathology. Although the cross sectional nature of this study precludes casual inference, it is of significant importance that even after the effect of attachment disturbance on emotion regulation and mindfulness deficits was accounted for, a modest relationship between deficits in emotion regulation and mindfulness remained significant. Such a finding suggest that even though modifying attachment styles may be difficult, it is possible that focusing on the development of adaptive emotion regulation skills and increasing core mindfulness skills may help reduce the overall expression of pathological personality traits.

Limitations and future directions

The current study is not without limitations. As with most PD-attachment studies that are cross-sectional in nature, drawing inferences related to causality remains difficult. Accordingly, future longitudinal research could more firmly clarify the relationship between attachment insecurity and the development of personality pathology from a developmental model.

As with most studies that use a primarily-student sample, the generalizability of the current study's findings are likely limited to individuals with a lower baseline of psychiatric symptoms than other individuals. However, as stated in the results, study findings were highly similar between the student and MTurk sample. Nonetheless, future studies using these measures could greatly benefit from obtaining a third sub-sample of participants from a psychiatric institution (e.g., inpatient unit).

The current study relied solely on an internet-based convenient sample that used self-report measures, which can create concerns as social desirability and lack of insight. Moreover, the measures used in this study lacked overt validity scales. Although these concerns are

reasonable, the lack of secondary gains largely negates the notion that individuals were motivated to “fake bad” or “fake good.” Additionally, the lengthy completion process and limited compensation likely decreased the motivation for to respond in an inconsistent or careless manner. Nonetheless, utilizing measures with validity scales may add to the legitimacy of results, in addition to screening outliers that could potentially skew results.

Table 1

Confirmatory Factor Analysis for ECR-r Items (N= 1217)

ECR-r factor	Anxiety	Avoidance
I'm afraid that I will lose my partner's love.	.80	-
I often worry that my partner will not want to stay with me.	.89	-
I often worry that my partner doesn't really love me.	.87	-
Worry romantic partners won't care about me like I care about them.	.89	-
I wish partner's feelings for me were as strong as feelings for him or her.	.77	-
I worry a lot about my relationships.	.81	-
When out of sight, I worry partner will be interested in someone else.	.76	-
When I show my feelings for partners, I worry they won't feel the same.	.86	-
I rarely worry about my partner leaving me.	.59	-
My romantic partner makes me doubt myself.	.73	-
I do not often worry about being abandoned.	.48	-
I find that my partner(s) don't want to get as close as I would like.	.79	-
Romantic partners change their feelings about me for no reason.	.78	-
My desire to be very close sometimes scares people away.	.61	-
I'm afraid once partner gets to know me, they won't like who I really am.	.81	-
I get mad when I don't get affection and support I need from my partner.	.73	-
I worry that I won't measure up to other people.	.69	-
My partner only seems to notice me when I'm angry.	.67	-
I prefer not to show a partner how I feel deep down.	-	.74
I feel comfortable sharing my private thoughts and feelings with my	-	.75
I find it difficult to allow myself to depend on romantic partners.	-	.74
I am very comfortable being close to romantic partners.	-	.80
I don't feel comfortable opening up to romantic partners.	-	.78
I prefer not to be too close to romantic partners.	-	.81
I get uncomfortable when a romantic partner wants to be very close.	-	.78
I find it relatively easy to get close to my partner.	-	.85
It's not difficult for me to get close to my partner.	-	.78
I usually discuss my problems and concerns with my partner.	-	.76
It helps to turn to my romantic partner in times of need.	-	.75
I tell my partner just about everything.	-	.83
I talk things over with my partner.	-	.82
I am nervous when partners get too close to me.	-	.80
I feel comfortable depending on romantic partners.	-	.68
I find it easy to depend on romantic partners.	-	.73
It's easy for me to be affectionate with my partner.	-	.75
My partner really understands me and my needs.	-	.78

Note. ECR-r = Experiences in Close Relationships – Revised. Loadings > .70 bolded.

CFI = .89, TLI = .88, RMSEA = .11; Anx and Avd $r = .54, p < .001$.

Table 2

Five-factor Confirmatory Factor Analysis for DERS Items (N= 1217)

DERS factor	I	II	III	IV	V
When I'm upset, I feel guilty for feeling that way.	.91				
When I'm upset, I feel ashamed with myself for feeling that way.	.90				
When I'm upset, I become embarrassed for feeling that way.	.86				
When I'm upset, I become angry with myself for feeling that way.	.82				
When I'm upset, I become irritated with myself for feeling that way.	.88				
When I'm upset, I feel like I am weak.	.81				
When I'm upset, I have difficulty concentrating.		.88			
When I'm upset, I have difficulty focusing on other things.		.84			
When I'm upset, I have difficulty getting work done.		.84			
When I'm upset, I have difficulty thinking about anything else.		.90			
When I'm upset, I can still get things done. (R)		.58			
When I'm upset, I lose control over my behaviors.			.91		
When I'm upset, I have difficulty controlling my behaviors.			.87		
When I'm upset, I become out of control.			.89		
When I'm upset, I feel out of control.			.89		
I experience my emotions as overwhelming and out of control.			.77		
When I'm upset, I feel like I can remain in control of my behaviors. (R)			.54		
When I'm upset, I believe that I'll end up feeling very depressed.				.83	
When I'm upset, I believe that I will remain that way for a long time.				.84	
When I'm upset, I believe that wallowing in it is all I can do.				.80	
When I'm upset, it takes me a long time to feel better.				.77	
When I'm upset, I believe that there is nothing I can do to make myself.				.82	
When I'm upset, I know that I can find a way to eventually feel better.(R)				.50	
When I'm upset, my emotions feel overwhelming.				.72	
When I'm upset, I start to feel very bad about myself.				.85	
I have difficulty making sense out of my feelings.					.88
I have no idea how I am feeling.					.78
I am confused about how I feel.					.82
I know exactly how I am feeling. (R)					.60
I am clear about my feelings. (R)					.59

Note. DERS = Difficulties in Emotion Regulation Scale.

I = Nonacceptance of Emotional Responses.

II = Difficulties Engaging in Goal-Directed Behaviors.

III = Impulse Control Difficulties.

IV = Limited Access to Emotion Regulation Strategies.

V = Lack of Emotional Clarity.

Table 3

Three-Factor Confirmatory Factor Analysis for MAAS Items (N= 1217)

MAAS Parcel factor	I	II	III
Seem I am running on automatic, without much awareness of what I'm doing	.83		
I do jobs or tasks automatically, without being aware of what I'm doing	.80		
I find it difficult to stay focused on what's happening in the present	.68		
I find myself listening to someone with one ear, doing something else at the same time	.61		
I tend not to notice feelings of physical tension or discomfort until they grab my attention	.58		
I find myself doing things without paying attention		.81	
I get so focused on a goal that I lose touch with what I'm doing right now to get there		.71	
I snack without being aware of what I'm eating		.62	
I walk quickly to get where I'm going without paying attention to my experience		.60	
I could be experiencing some emotion and not be conscious of it until some time later		.55	
I rush through activities without being attentive to them			.78
I drive places on 'automatic pilot' and then wonder why I went there			.68
I find myself preoccupied with the future or the past			.61
I break/spill things because of carelessness or not paying attention			.59
I forget a person's name almost as soon as I've been told it for the first time			.44

Note. MAAS = Mindfulness Attention Awareness Scale. CFI = .93. TLI = .92. RMSEA = .11

Table 4

Comparison of Confirmatory Factor Analyses for PID-5 Original Set vs. PID-5 Reduced Set (PID-5r).

Index of model fit	TLI	CFI	RMSEA
Antagonism	.95 (.98)	.96 (.98)	.07 (.05)
Detachment	.95 (.99)	.95 (.99)	.07 (.04)
Disinhibition	.96 (.98)	.96 (.98)	.07 (.05)
Negative Affect	.95 (.92)	.96 (.93)	.08 (.08)
Psychoticism	.95 (.97)	.96 (.97)	.07 (.09)

Note. Fit indices for PID-5 are not parenthesized, while those for the PID-5r are listed in parentheses.

Table 5

Descriptives for Total Sample

Measure (# of items)	<i>MIC</i>	<i>Range</i>	<i>Mdn</i>	<i>M</i>	<i>SD</i>	<i>Skew</i>	<i>Kurtosis</i>
ECR-R (36)	.37	36-226	119.0	114.03	40.81	-0.06	-0.70
Attachment Anxiety (18)	.48	18-122	61.00	60.13	24.77	0.13	-0.78
Attachment Avoidance (18)	.50	18-124	54.00	53.90	22.65	0.27	-0.65
PID-5 (220)	.25	24-579	178.0	189.01	98.72	0.47	-0.43
Antagonism (21)	.48	0-56	12.00	14.67	11.25	0.83	0.06
Detachment (24)	.46	0-65	19.00	21.36	13.89	0.51	-0.51
Disinhibition (22)	.46	0-57	16.00	17.37	12.00	0.54	-0.45
Negative Affect (23)	.47	0-67	26.00	25.41	14.85	0.26	-0.75
Psychoticism (33)	.54	0-90	24.00	26.79	20.87	0.56	-0.56
MAAS (15)	.45	15-90	55.00	55.41	14.97	0.01	-0.23
DERS (36)	.36	36-164	81.00	82.63	23.62	0.40	-0.39
Lack emotional awareness (6)	.17	6-30	14.00	14.21	4.64	0.48	-0.02
Lack emotional clarity (5)	.35	5-25	11.00	11.21	3.86	0.57	-0.01
Diff. engaging in goal-directed Bx	.34	5-25	15.00	14.56	4.89	0.04	-0.74
Impulse control difficulties (6)	.40	6-30	11.00	12.05	5.03	0.88	0.11
Non-accept emotional responses (6)	.41	6-30	13.00	13.98	6.05	0.59	-0.38
Limited emotion reg. strategies (8)	.41	8-39	16.00	17.53	6.96	0.65	-0.30

Note. ($N = 1217$). *MIC* = Mean Inter-item Correlation for composite scales. *Mdn* = Median.

M = Mean. *SD* = Standard Deviation.

Table 6

Descriptives among General Population (n = 271) and Student (n = 946) Samples.

	Mean		SD		Skewness		Kurtosis		t
	Gen	Stu	Gen	Stu	Gen	Stu	Gen	Stu	
ECR-r Total score	95.28	119.40	42.29	38.76	.39	-.12	-.81	-.51	8.85
Attachment Anxiety	49.30	63.24	25.25	23.75	.53	.09	-.68	-.69	8.39
Attachment Avoidance	45.98	56.17	21.96	22.35	.64	.19	-.36	-.61	6.64
PID-5 Total score	158.16	197.93	96.89	97.49	.78	.41	-.17	-.40	5.93
Antagonism	13.52	15.00	11.15	11.27	.86	.83	-.15	.12	1.90*
Detachment	19.09	22.01	14.00	13.80	.79	.44	.18	-.65	3.07**
Disinhibition	13.46	18.50	11.64	11.87	1.00	.45	.37	-.51	6.19
Negative Affect	20.28	26.89	14.31	14.68	.47	.21	-.62	-.76	6.57
Psychoticism	20.54	28.58	19.33	20.97	.91	.47	.06	-.63	5.66
MAAS Total score	59.37	54.27	17.12	14.10	-.41	.11	-.14	-.20	4.99
DERS Total score	76.41	84.41	22.58	23.62	.36	.40	-.77	-.34	4.77
Awareness	11.53	14.20	4.42	4.71	.54	.47	.64	-.17	0.02 ^{ns}
Clarity	9.60	11.66	3.39	3.86	.76	.52	-.06	.01	7.96
Goals	13.29	14.93	5.00	4.80	.20	.02	-.69	-.74	4.90
Impulse	11.53	12.20	4.70	5.10	.78	.90	-.19	.12	1.94*
Non-Acceptance	12.40	14.43	5.35	6.16	.49	.58	-.77	-.43	4.93
Strategies	16.59	17.00	6.50	7.07	.59	.65	-.41	-.32	2.52**

Note. N= 1217. SD = Standard Deviation. Gen= General population. Stu = Student.

ECR-r = Experiences in Close Relationships – Revised. PID-5 = Personality Inventory for DSM-5.

*MAAS = Mindfulness Attention Awareness Scale. DERS = Difficulties in Emotion Regulation Scale. All t-tests statistically significant at $p < .001$, unless otherwise indicated. * = $p < .05$, ** = $p < .01$, ns = non-significant.*

Table 7

Demographic Statistics

Variable	Frequency (%)		
	Entire sample (<i>N</i> = 1217)	Student (<i>n</i> = 946) (77.7%)	General population (<i>n</i> = 271) (22.3%)
Sex			
Female	873 (71.7)	700 (74.0)	173 (63.8)
Male	344 (28.3)	246 (26.0)	98 (36.2)
Race			
White, non-Hispanic	692 (56.9)	490 (51.8)	202 (74.5)
White, Hispanic	236 (19.4)	211 (22.3)	25 (9.2)
Black	148 (12.2)	127 (13.4)	21 (7.7)
Asian	83 (6.8)	66 (7.0)	17 (6.3)
Am. Indian/Native Am.	11 (0.9)	7 (0.7)	4 (1.5)
Other	47 (3.9)	45 (4.8)	2 (0.7)
Marital Status			
Single	1031 (84.7)	904 (95.6)	127 (46.9)
Married	148 (12.2)	27 (2.9)	121 (44.6)
Separated/Divorced	37 (3.0)	15 (1.6)	22 (8.1)
Widowed	1 (0.1)	- (-)	1 (0.4)
Currently in relationship			
No	530 (43.5)	486 (51.4)	44 (16.2)
Yes	687 (56.5)	460 (48.6)	227 (83.8)
Education			
High school/GED	229 (18.8)	204 (21.6)	25 (9.2)
Some college	635 (52.2)	573 (60.6)	62 (22.9)
Associate's degree	152 (12.5)	125 (13.2)	27 (10.0)
Bachelor's degree	156 (12.8)	40 (4.2)	116 (42.8)
Post-Bachelor's	45 (3.7)	4 (0.4)	41 (15.1)

Note. Am. Indian/Native Am = American Indian/Native American.

Table 8

Correlations between Demographic and Other Study Variables – Total Sample (N = 1217)

Variable	Sex	Race	Marital status	Education
ECR-r Total score	.01	.08**	-.13***	-.17***
Attachment Anxiety	-.02	.05	-.12***	-.19***
Attachment Avoidance	.03	.10**	-.10***	-.10**
PID-5 Total score	.11***	.05	-.14***	-.11***
Antagonism	.19***	.07*	-.09**	.02
Detachment	.08**	.06*	-.04	-.08**
Disinhibition	.06*	.04	-.14***	-.11***
Negative Affect	-.09**	-.01	-.11***	-.16***
Psychoticism	.12***	.04	-.13***	-.12***
MAAS Total score	.05	.04	.09**	.11***
DERS Total score	-.06	.03	-.11***	-.11***
Awareness	.07*	.03	-.08**	-.06*
Clarity	-.04	.09**	-.19***	-.13***
Goals	-.08**	-.04	-.04	-.13***
Impulse	-.06*	.03	-.05	-.03
Non-Acceptance	-.05	.02	-.11***	-.11***
Strategies	-.06*	.01	-.04	-.06*

Note. ECR-r = Experiences in Close Relationships – Revised. PID-5 = Personality Inventory for DSM-5. MAAS = Mindful Attention Awareness Scale. DERS = Difficulties in Emotion Regulation Scale.

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

Table 9

Correlations between Demo and Other Variables – General Population (n = 271) and Students (n = 946)

Variable	Sex		Race		Marital status		Education	
	Gen	Stu	Gen	Stu	Gen	Stu	Gen	Stu
ECR-r Total score	.14*	-.01	-.02	.07*	.00	-.04	.06	-.10**
Attachment Anxiety	.12	-.03	-.03	.02	.01	-.03	.00	-.12***
Attachment Avoidance	.14*	.02	-.01	.09**	-.01	-.03	.11	-.05
PID-5 Total score	.16**	.12**	-.04	.05	-.11	-.05	-.05	-.02
Antagonism	.18**	.21***	.06	.07*	-.17**	-.03	.08	.05
Detachment	.13*	.08*	-.04	.07*	.06	-.04	-.07	-.02
Disinhibition	.08	.08*	-.06	.03	-.15*	-.04	-.05	-.01
Negative Affect	-.04	-.08*	-.10	-.02	.00	-.05	-.09	-.07*
Psychoticism	.18**	.12***	-.05	.04	-.12	-.05	-.07	-.03
MAAS Total score	.05	.03	.13*	.05	-.02	.07*	.01	.05
DERS Total score	.03	-.07*	-.02	.01	-.08	-.04	.02	-.07*
Awareness	.17**	.05	.02	.03	-.07	-.10**	.02	-.12**
Clarity	.07	-.05	.04	.06	-.14*	-.09**	.10	-.07
Goals	-.04	-.08*	-.11	-.05	.03	.02	-.06	-.07*
Impulse	-.03	-.06	.04	.02	-.11	.01	.05	-.03*
Non-Acceptance	.04	-.06	.01	-.01	-.08	-.05	-.01	-.06
Strategies	-.03	-.06	-.05	.01	.00	-.02	.00	-.04

Note. Gen= General population. Stu = Student. ECR-r = Experiences in Close Relationships – Revised. PID-5 = Personality Inventory for DSM-5. MAAS = Mindful Attention Awareness Scale. DERS = Difficulties in Emotion Regulation Scale.

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

Table 10

Correlations between Measure Scales and Facets

Variable	ECR	Anx	Avd	PID	Ant	Det	Dis	NA	Psy	MAAS	DERS	Awar	Clar	Goal	Imp	Non	Str
Total ECR-r score	-																
Attachment Anx.	.87	-															
Attachment Avoid.	.85	.48	-														
Total PID-5 score	.59	.58	.44	-													
Antagonism	.33	.31	.25	.77	-												
Detachment	.60	.47	.57	.77	.47	-											
Disinhibition	.49	.48	.35	.85	.64	.58	-										
Negative Affect	.57	.68	.29	.77	.43	.54	.63	-									
Psychoticism	.48	.48	.34	.89	.62	.64	.73	.64	-								
Total MAAS score	-.33	-.31	-.26	-.35	-.17	-.30	-.38	-.33	-.32	-							
Total DERS score	.58	.57	.43	.65	.34	.53	.59	.64	.53	-.39	-						
Awareness	.32	.15	.40	.24	.14	.29	.24	.11	.18	-.21	.42	-					
Clarity	.51	.44	.44	.52	.30	.45	.52	.46	.45	-.33	.74	.46	-				
Goals	.38	.44	.20	.40	.17	.31	.41	.51	.32	-.29	.71	.05*	.40	-			
Impulse	.42	.43	.30	.56	.40	.41	.52	.53	.44	-.28	.81	.17	.52	.53	-		
Non-Acceptance	.43	.46	.27	.50	.29	.38	.42	.53	.42	-.30	.78	.16	.46	.48	.53	-	
Strategies	.52	.55	.34	.59	.32	.20	.51	.64	.48	-.33	.90	.20	.57	.63	.76	.66	-

Note. $N=1217$ * $p=.12$. All other correlations significant at $p<.0001$. Correlations for aggregate scores on measures appear in bold.

ECR-r = Experiences in Close Relationships – Revised. PID-5 = Personality Inventory for DSM-5. MAAS = Mindful Attention Awareness Scale. DERS = Difficulties in Emotion Regulation Scale.

		MODEL OF SELF (Dependence)	
		Positive (Low)	Negative (High)
MODEL OF OTHER (Avoidance)	Positive (Low)	<p>SECURE Comfortable with intimacy and autonomy</p>	<p>PREOCCUPIED Preoccupied (Main) Ambivalent (Hazan) Overly dependent</p>
	Negative (High)	<p>DISMISSING Denial of Attachment Dismissing (Main) Counter-dependent</p>	<p>FEARFUL Fear of Attachment Avoidant (Hazan) Socially avoidant</p>

Figure 1. Four-Prototype Attachment Model as Proposed by Bartholomew (1990).

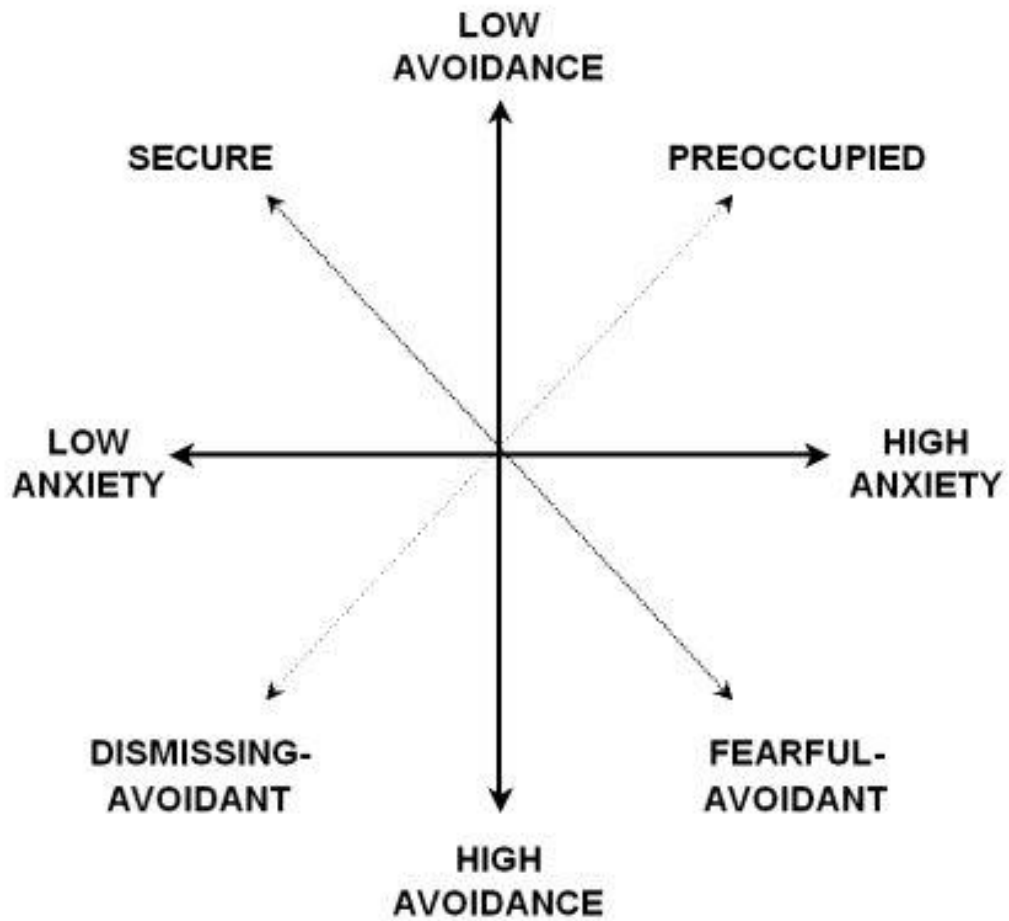


Figure 2. Mikulincer & Shaver's (2007) two-space dimensional model of attachment.

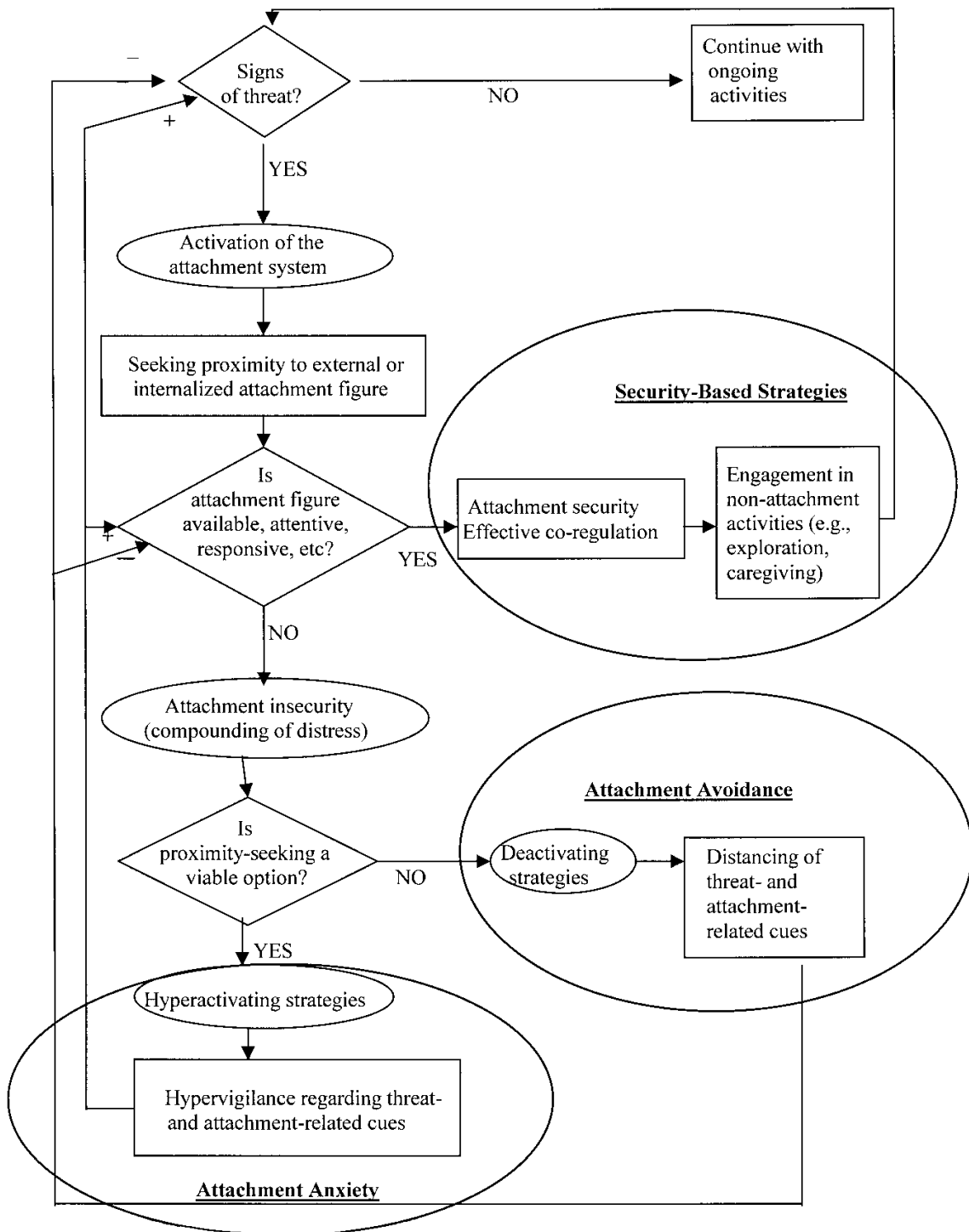
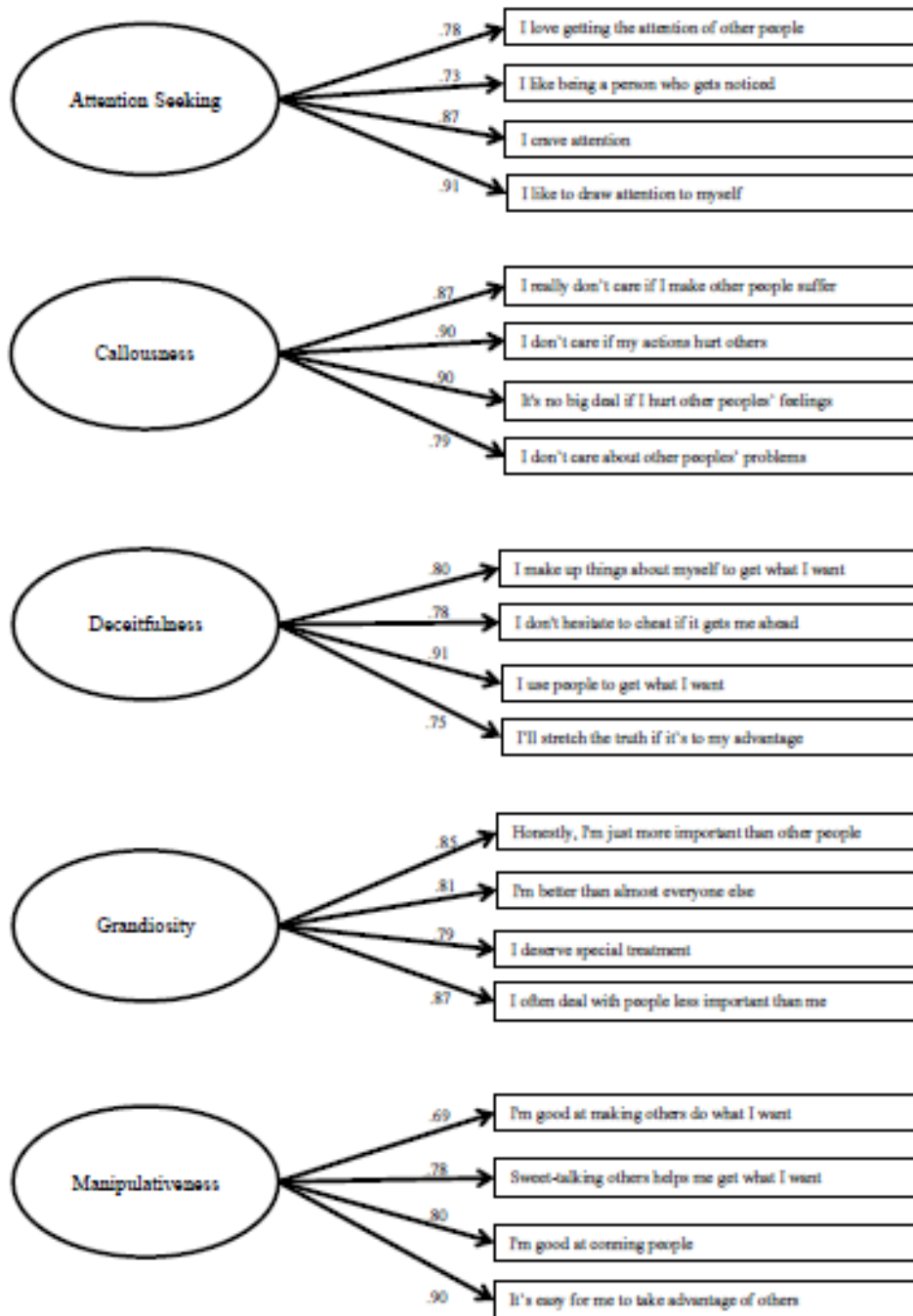


Figure 3. Shaver and Mikulincer's (2007) Model of attachment behavioral system activation.



Figure 4. Confirmatory factor analysis for PID-5 antagonism items.



PID-5 (reduced) Antagonism Domain
 (N = 1217)
 Model Fit: TLI = .98, CFI = .98, RMSEA = .05

Figure 5. Confirmatory factor analysis for PID-5r antagonism items.

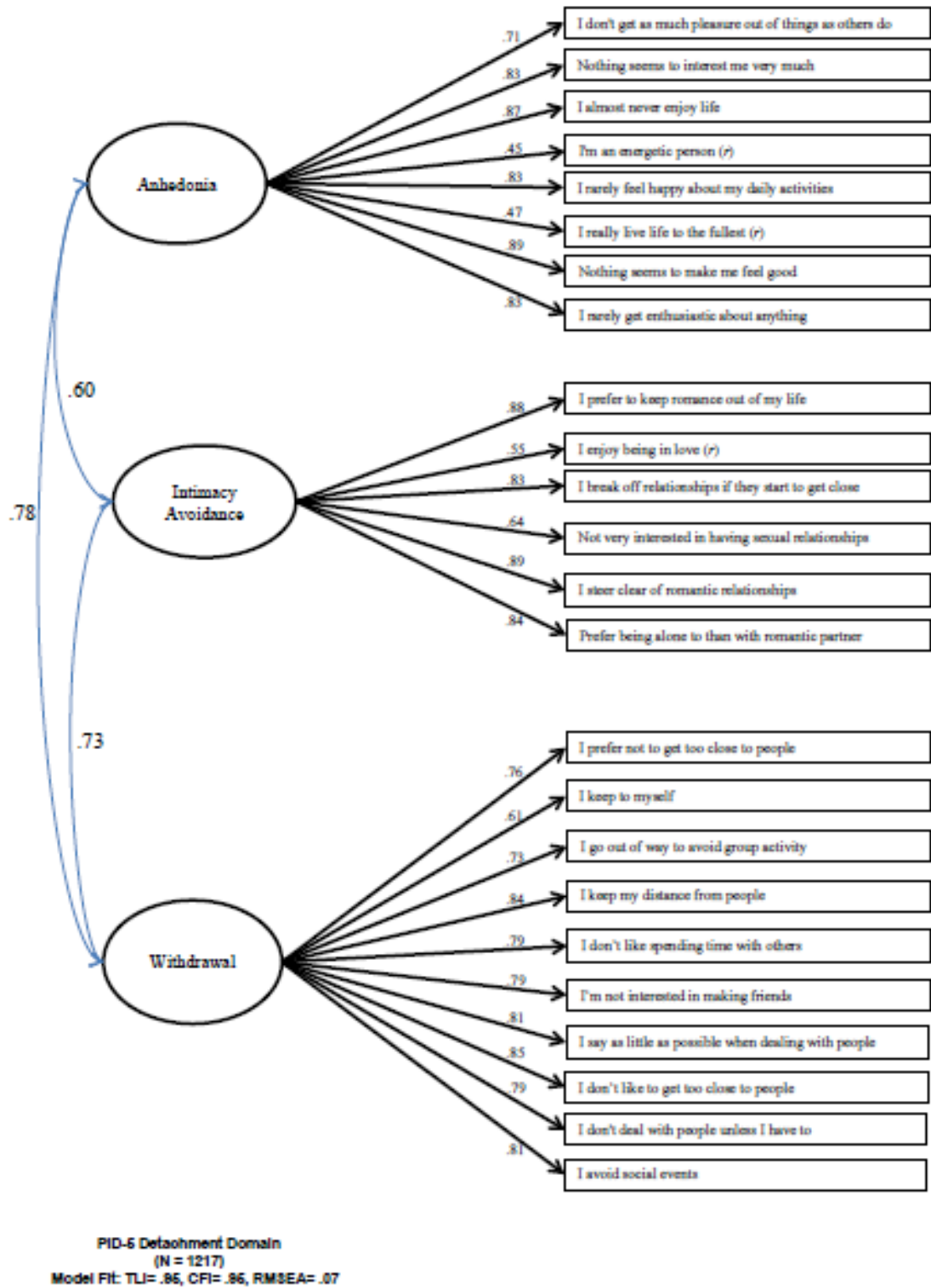
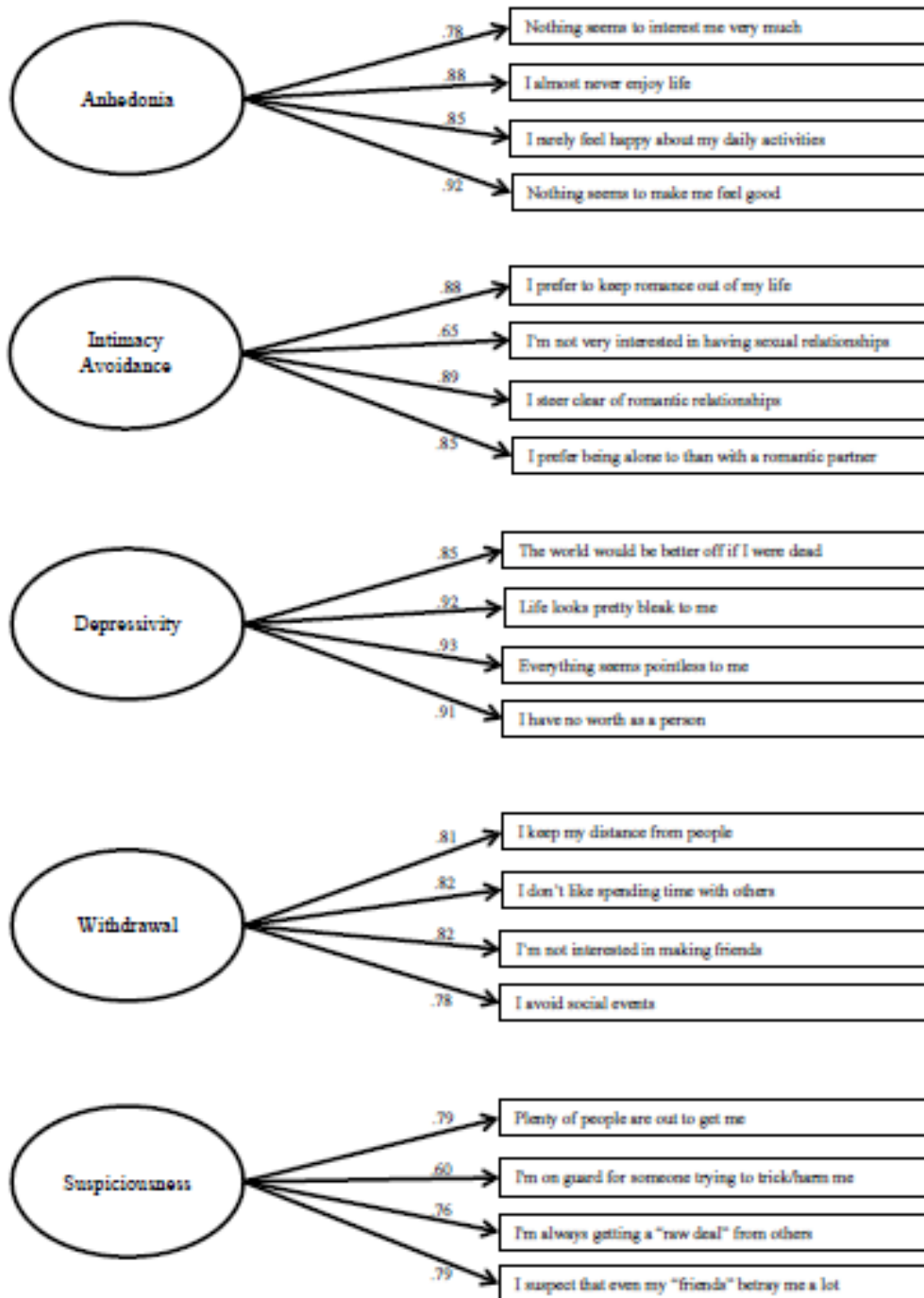


Figure 6. Confirmatory factor analysis for PID-5 detachment items.



PID-5 (reduced) Detachment Domain
 (N = 1217)
 Model Fit: TLJ= .98, CFI= .98, RMSEA= .04

Figure 7. Confirmatory factor analysis for PID-5r detachment items.

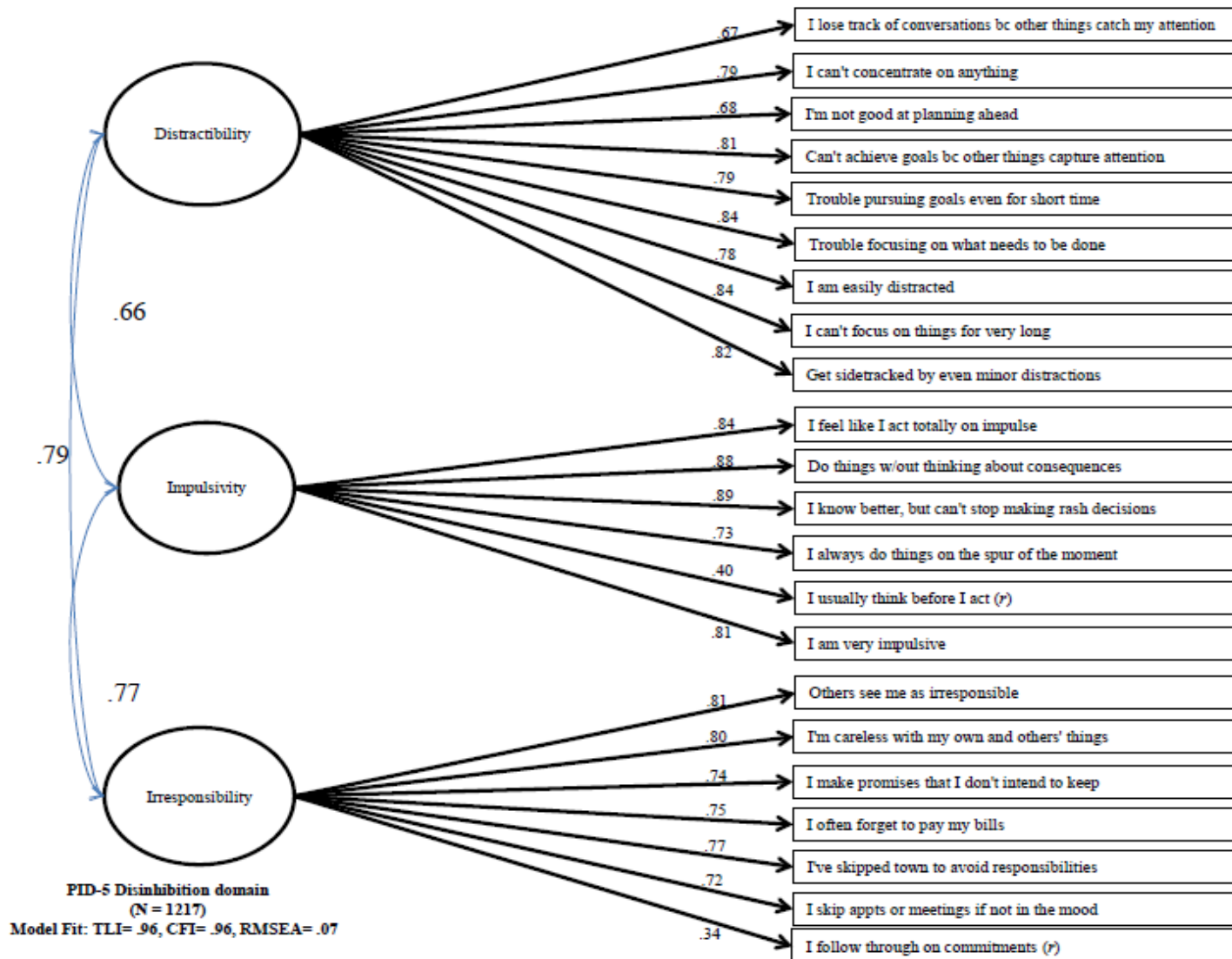
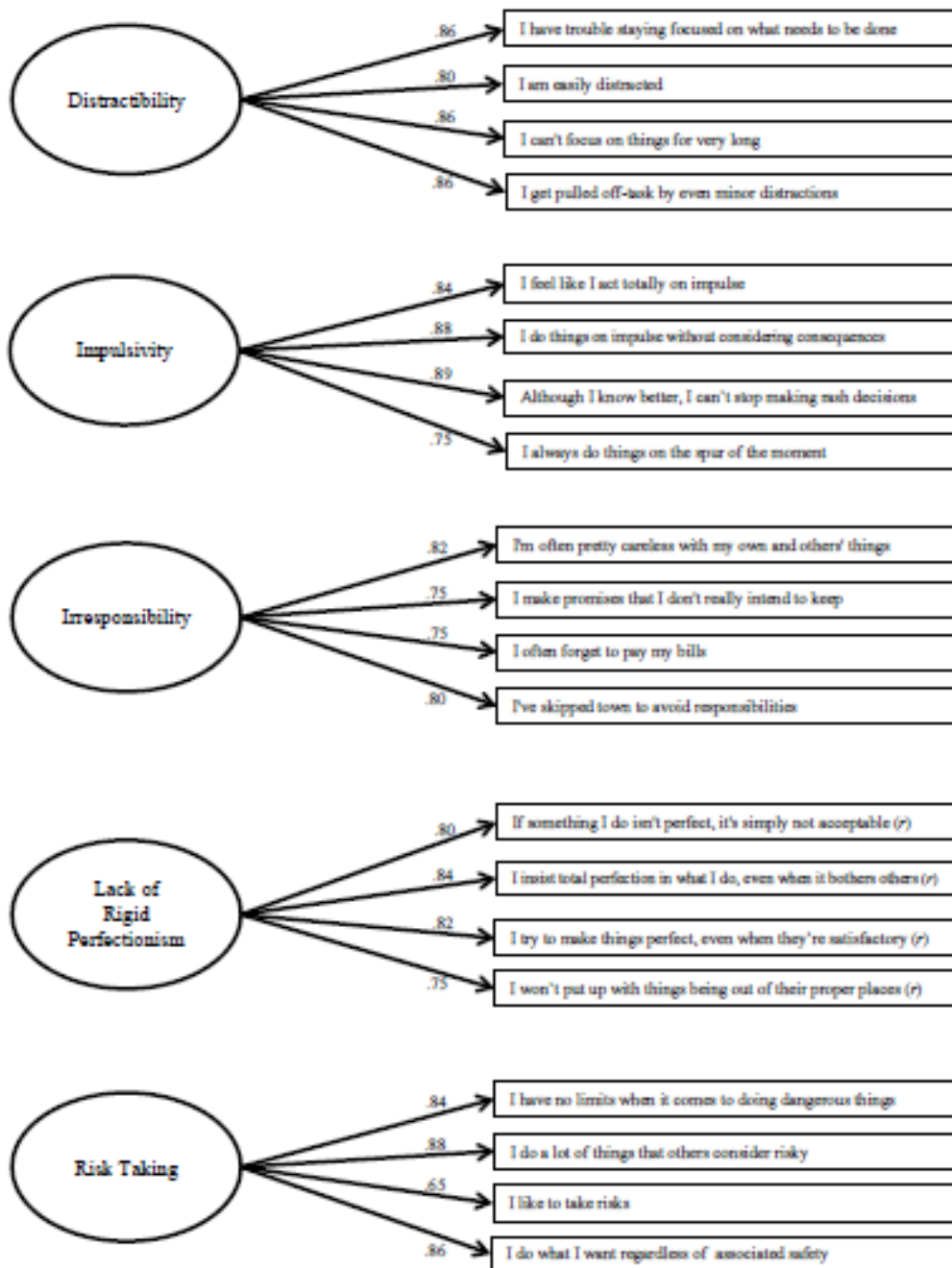


Figure 8. Confirmatory factor analysis for PID-5 disinhibition items.



PID-5 (reduced) Disinhibition Domain
 (N = 1217)
 Model Fit: TLJ= .88, CFI= .88, RMSEA= .06

Figure 9. Confirmatory factor analysis for PID-5r disinhibition items.

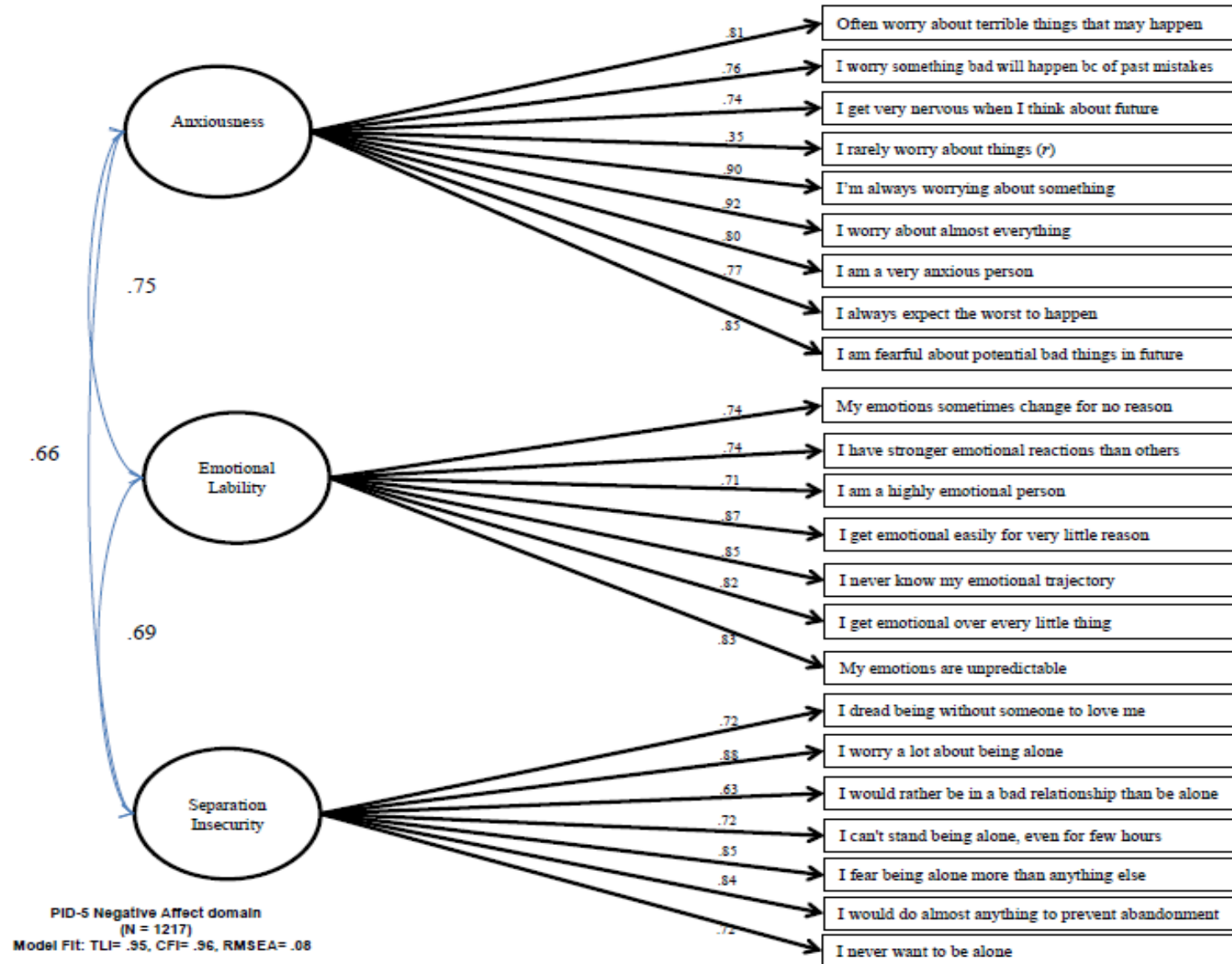
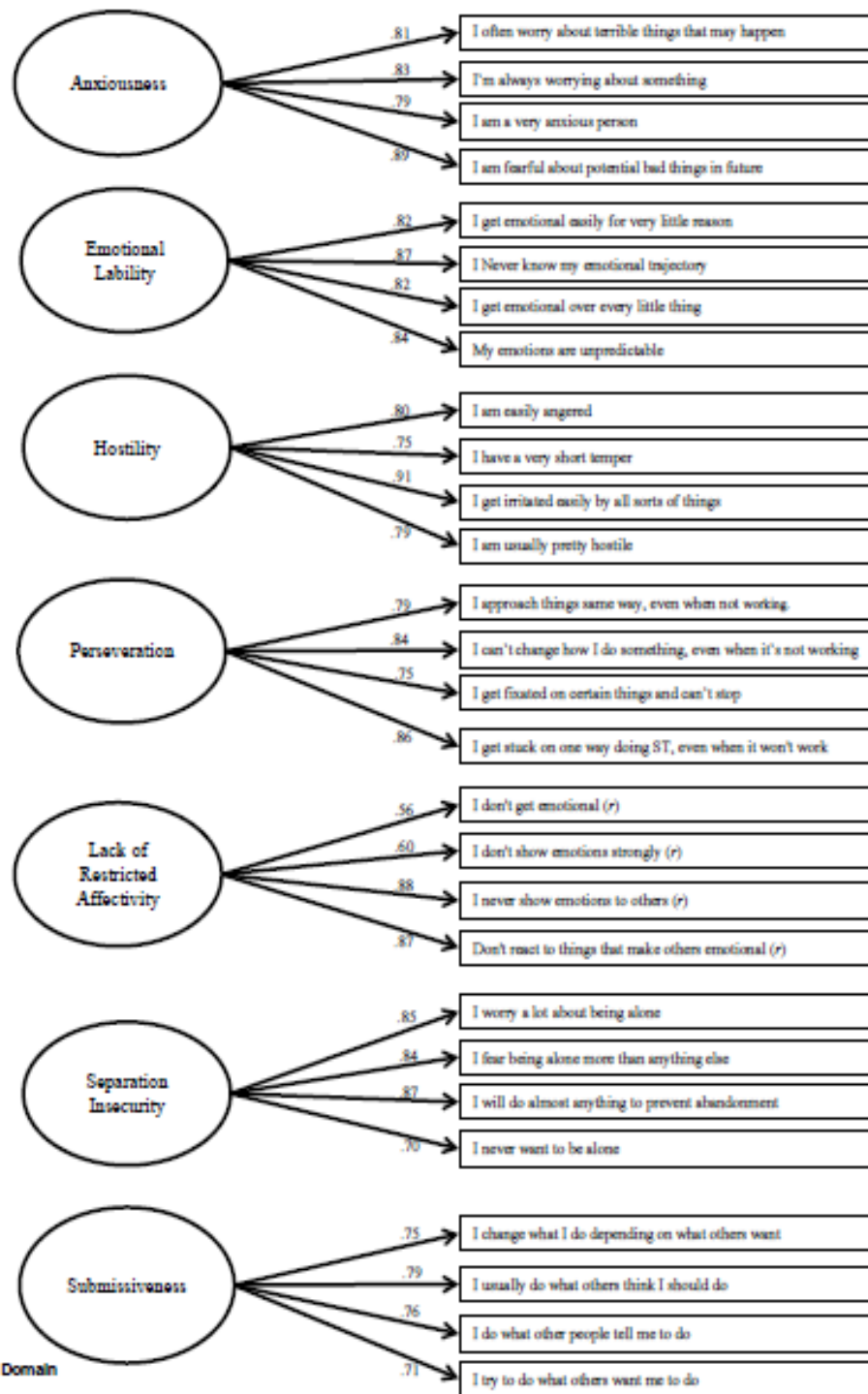


Figure 10. Confirmatory factor analysis for PID-5 negative affect items.



PID-5 (reduced) Negative Affect Domain
 (N = 1217)
 Model Fit: TLI= .82, CFI= .83, RMSEA= .08

Figure 11. Confirmatory factor analysis for PID-5r negative affect items.

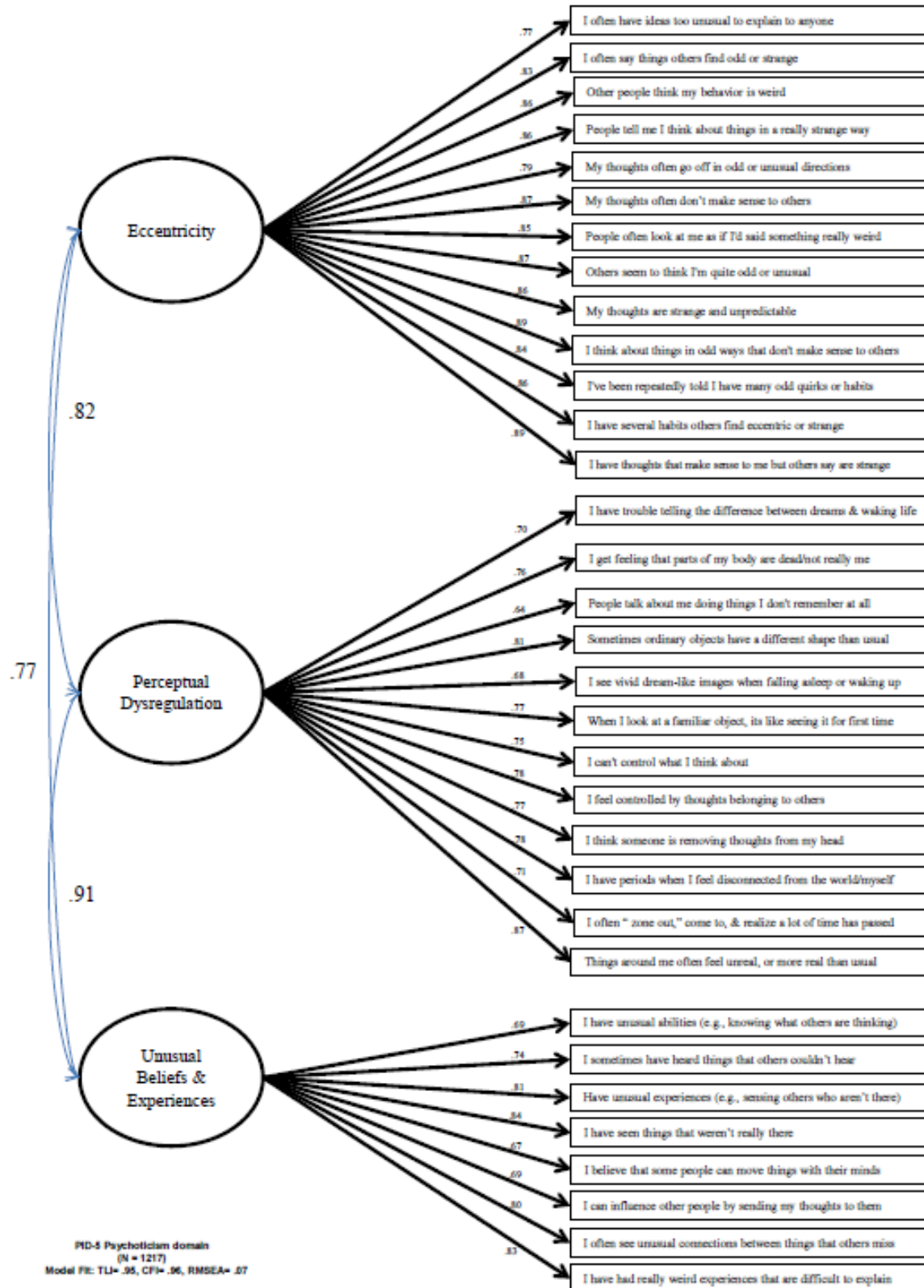
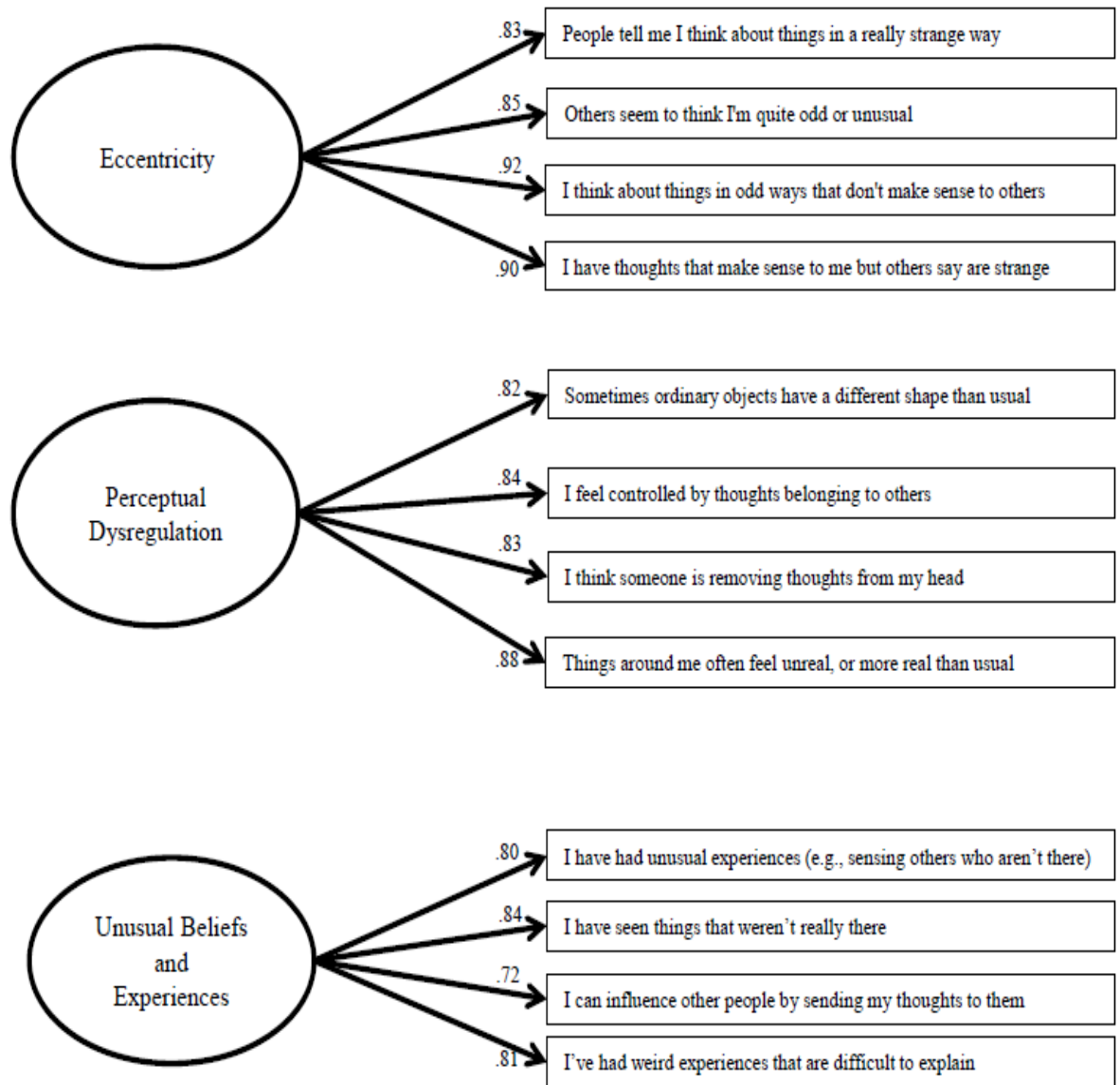


Figure 12. Confirmatory factor analysis for PID-5 psychoticism items.



PID-5 (reduced) Psychoticism Domain
 (N = 1217)
 Model Fit: TLI= .97, CFI= .97, RMSEA= .09

Figure 13. Confirmatory factor analysis for PID-5r psychoticism items.

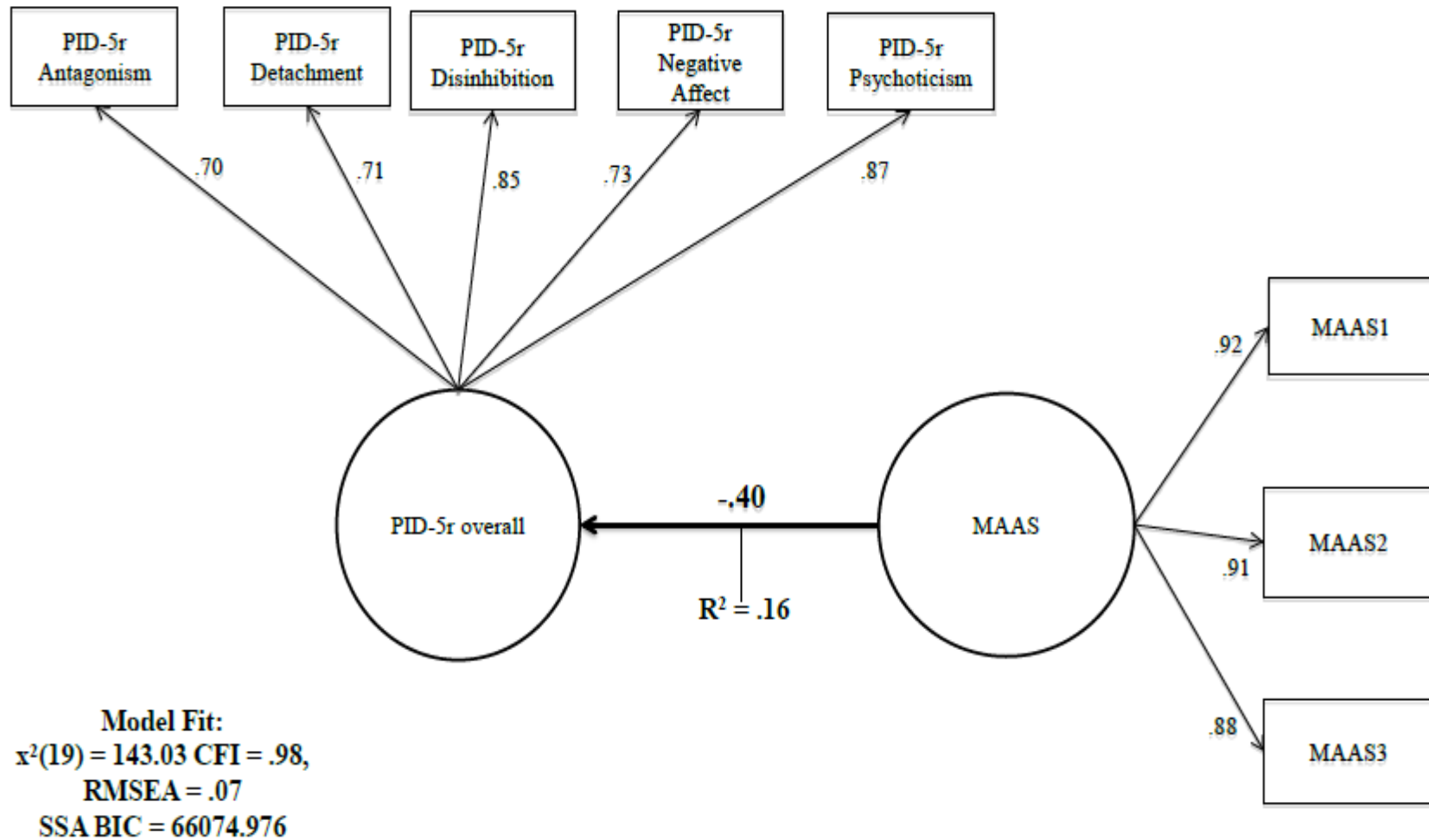


Figure 14. Mindfulness and personality pathology structural equation model.

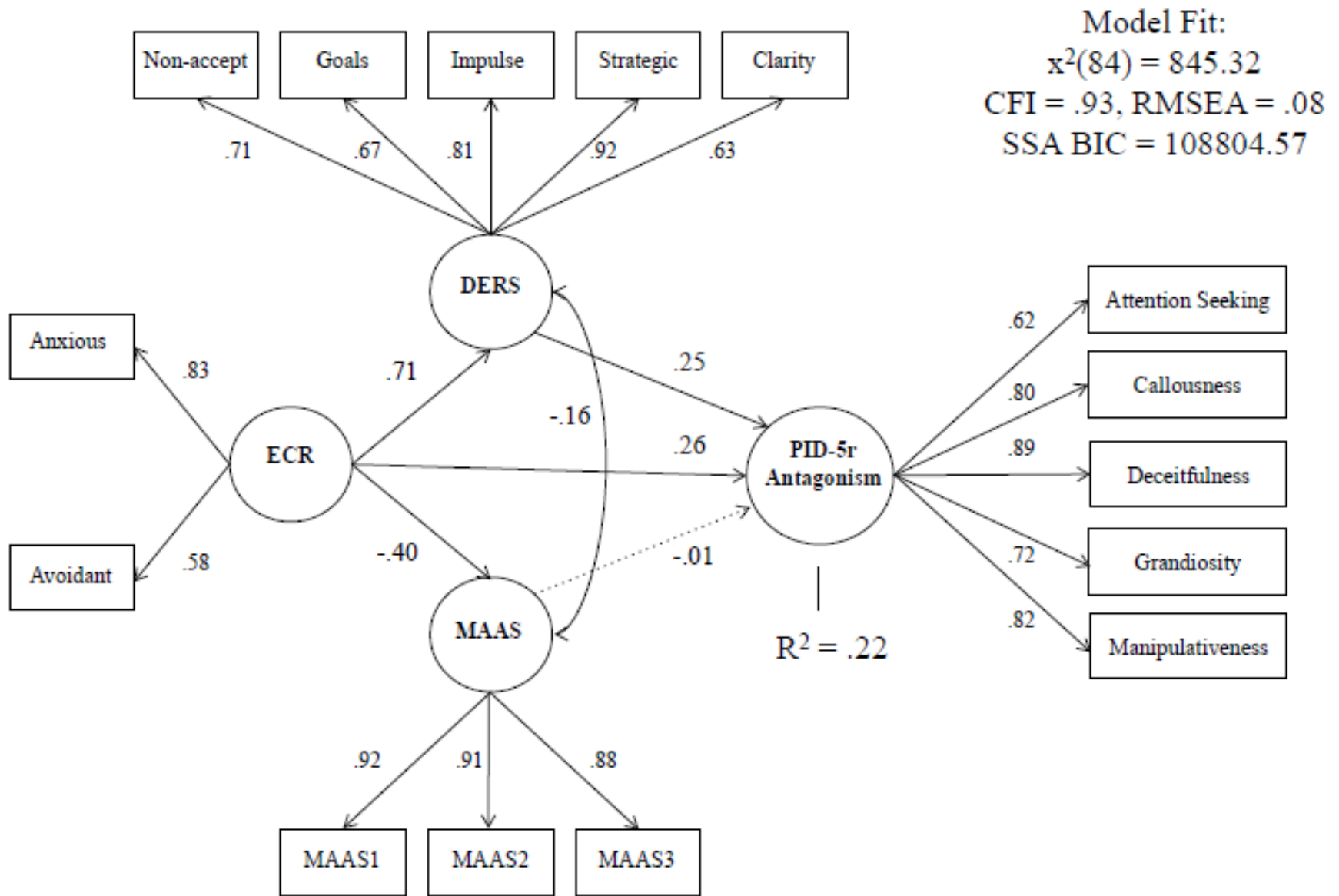


Figure 15. PID-5r antagonism structural equation model.

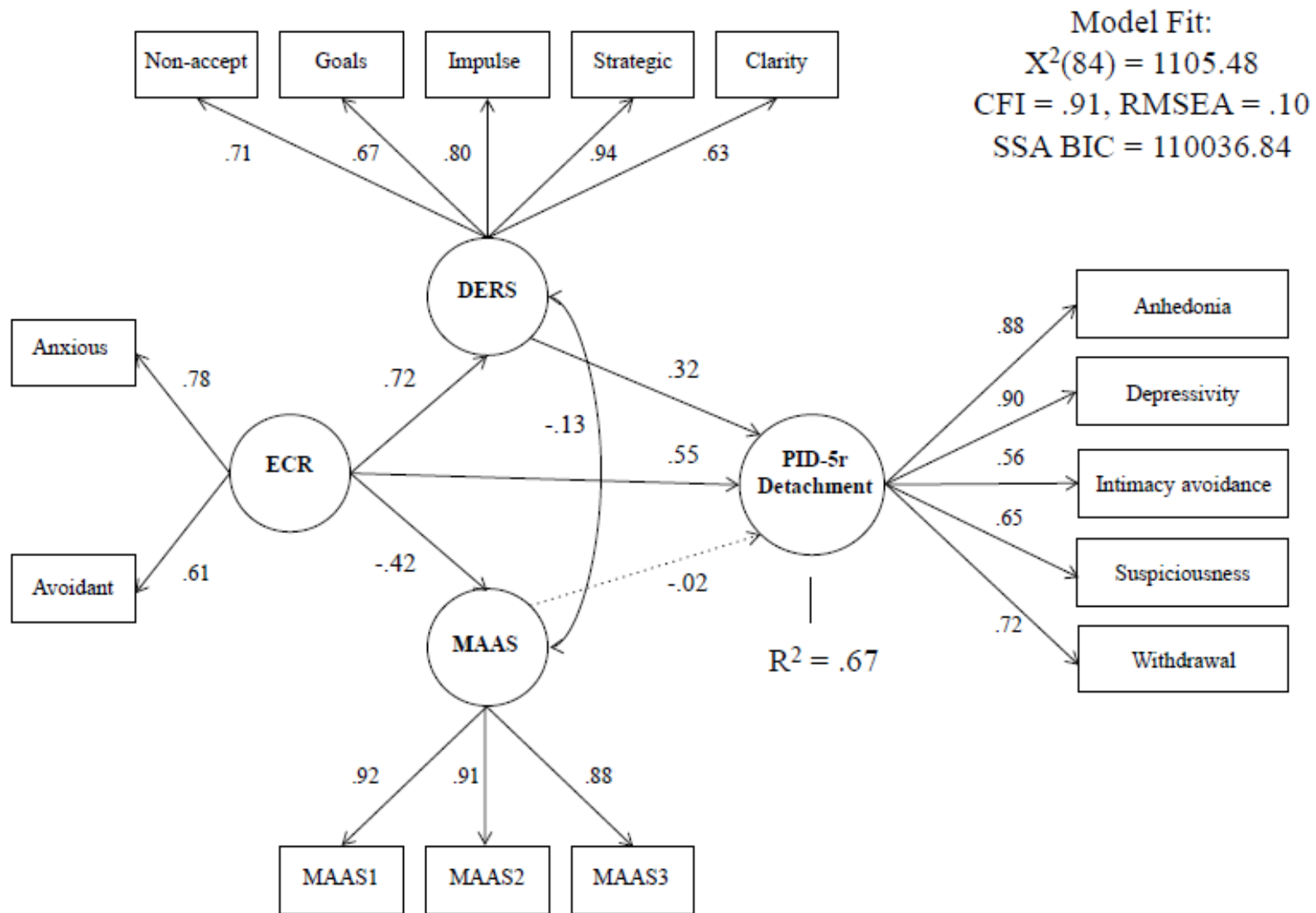


Figure 16. PID-5r detachment structural equation model.

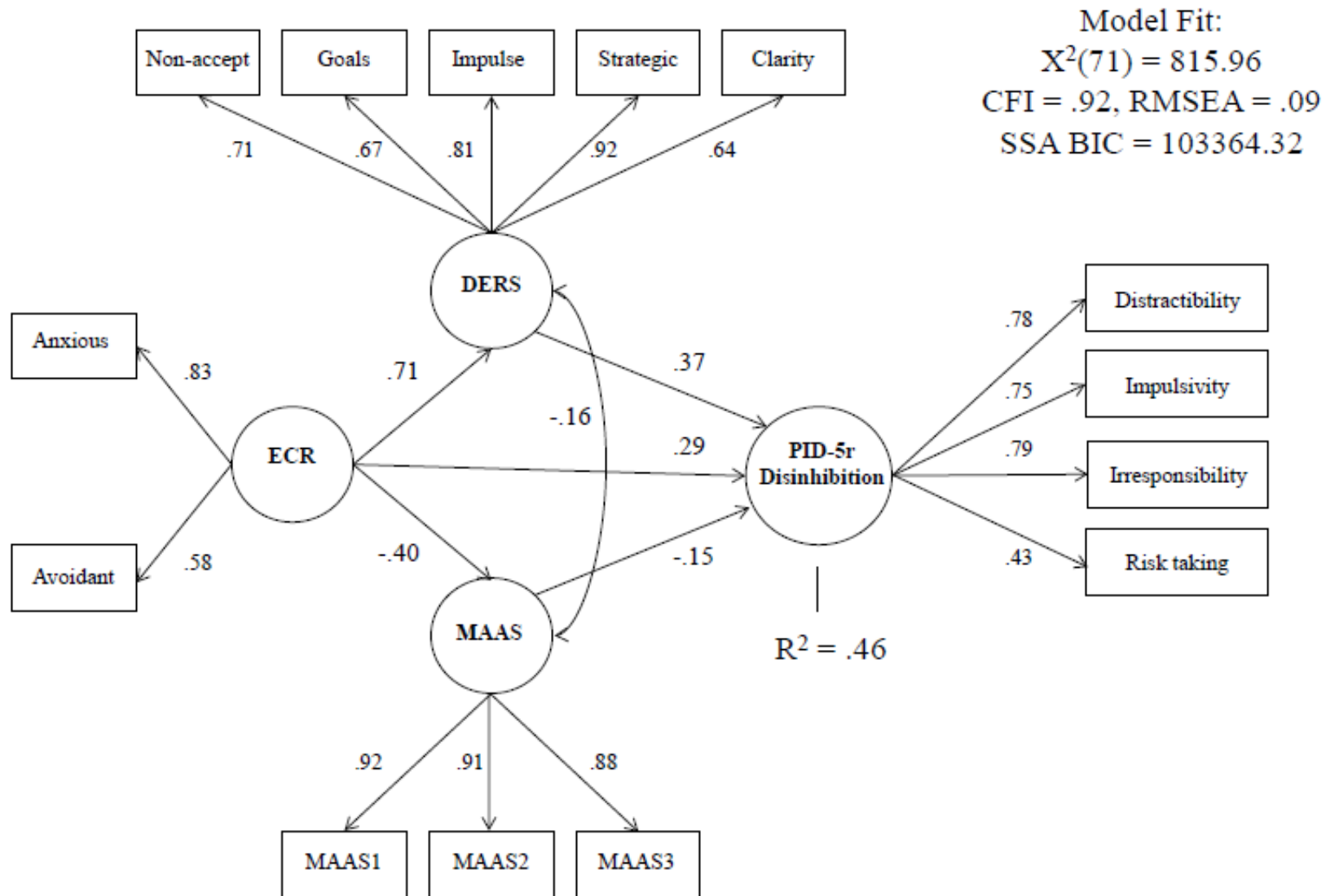


Figure 17. PID-5r disinhibition structural equation model.

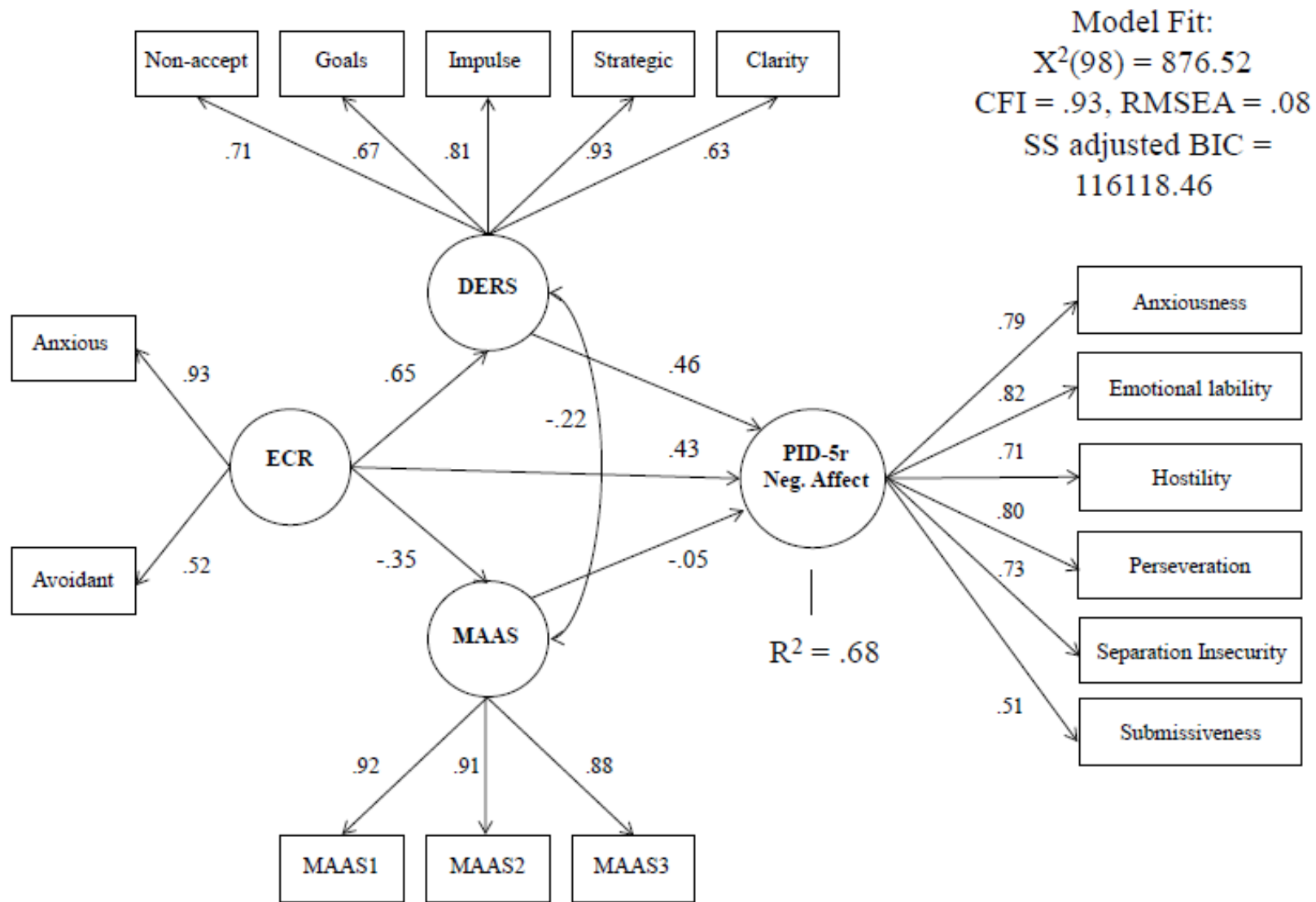


Figure 18. PID-5r negative affect structural equation model.

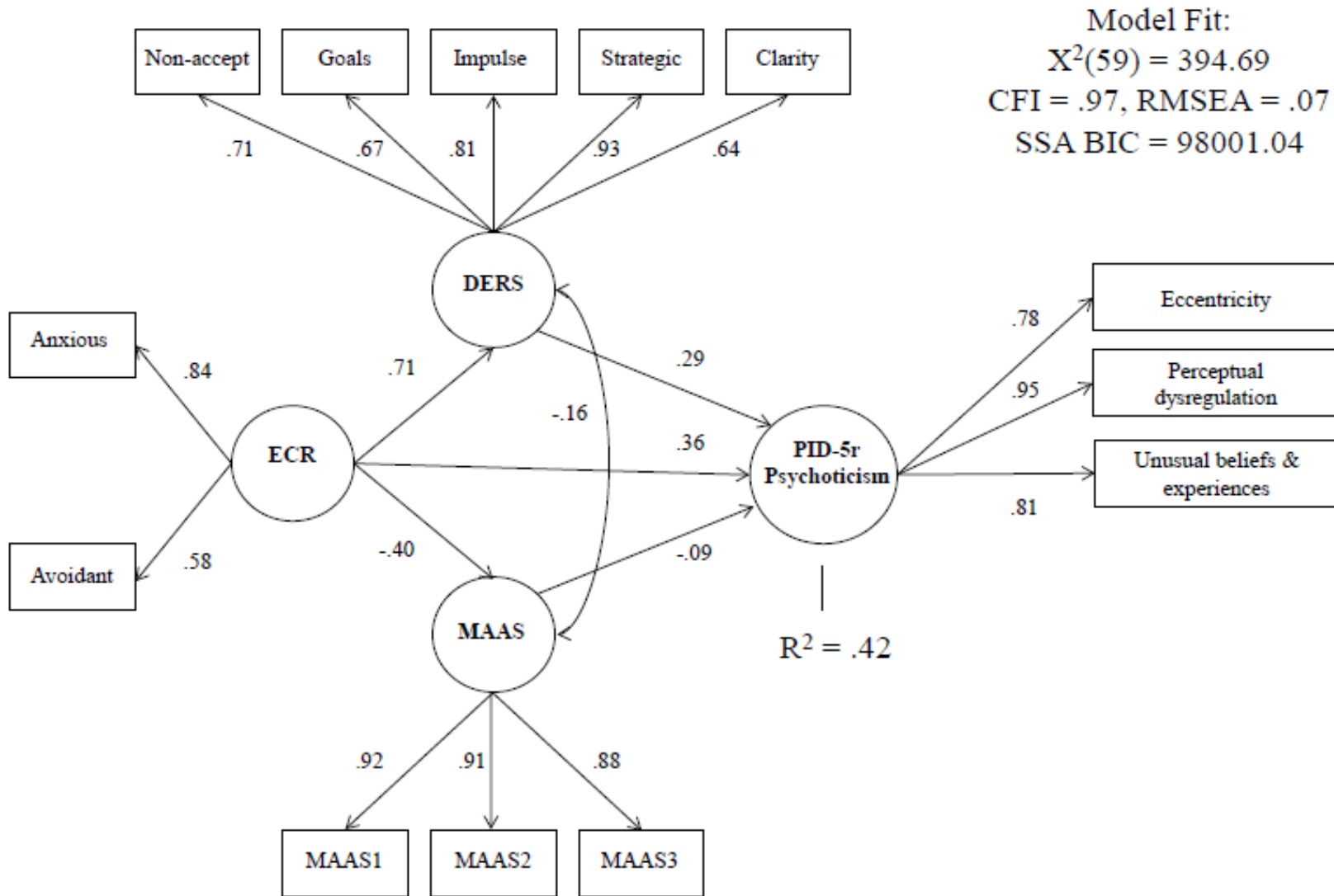


Figure 19. PID-5r psychoticism structural equation model.

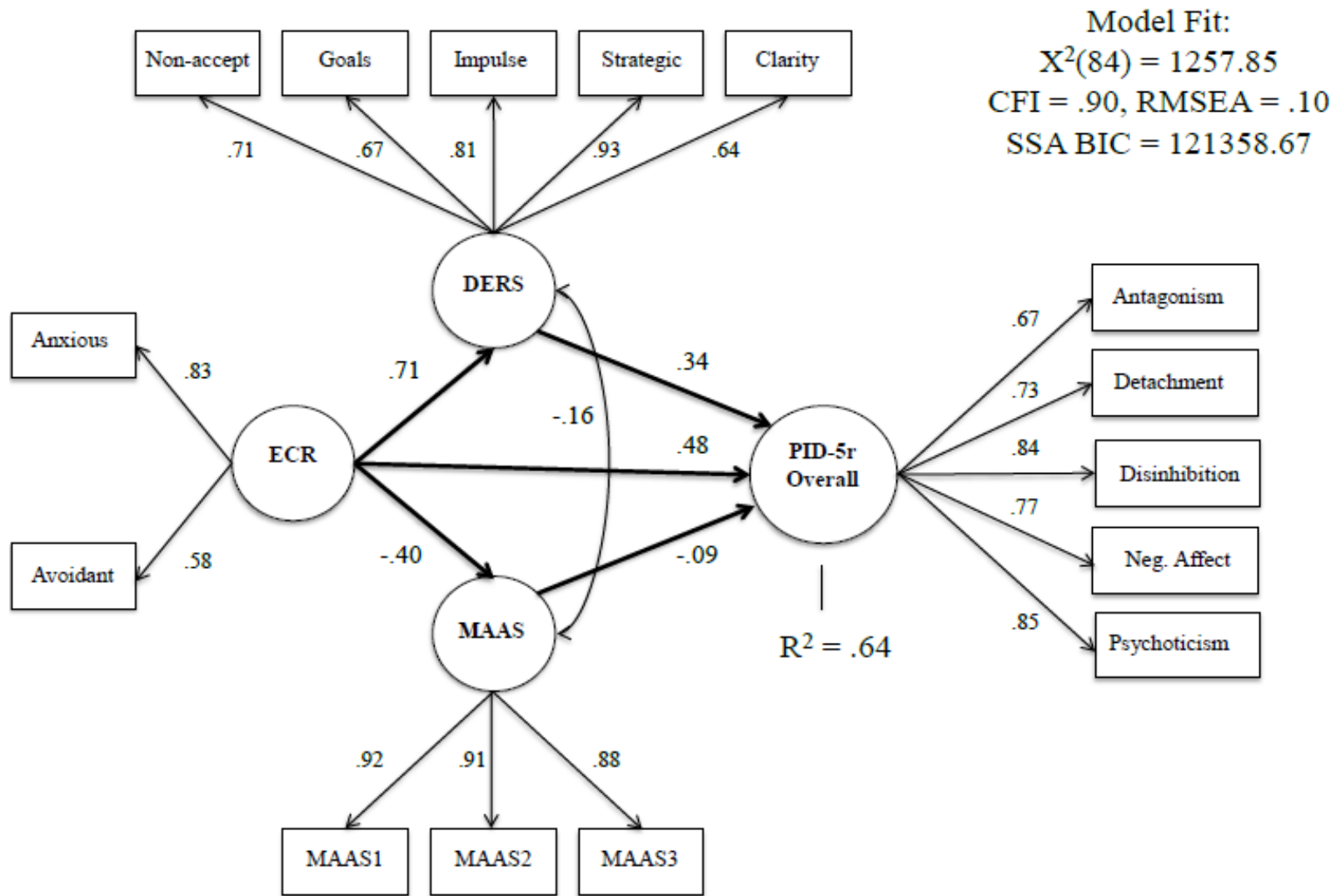


Figure 20. PID-5r overall structural equation model.

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