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## Temperament, emotion regulation, and distress tolerance as related correlates of psychological symptoms

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**TEMPERAMENT, EMOTION REGULATION, AND DISTRESS TOLERANCE  
AS RELATED CORRELATES OF PSYCHOLOGICAL SYMPTOMS**

by

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A dissertation submitted in partial fulfillment of the requirements  
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## ABSTRACT

Researchers have postulated that those with difficult temperament are at risk for difficulties with regulating emotions, are less tolerant of distressing stimuli, have characteristic difficulty coping with distress, and are (at some periods of development) more apt to experience clinically significant psychological symptoms. This study used exploratory factor analyses and structural equation modeling to compose and test a model that explained how emotion regulation, distress tolerance, and coping skills interact to explain how certain temperament features translate into psychological symptoms. Because those with difficult temperament were thought to be at a unique risk for psychological maladjustment, mean-based criterion were used to identify those with relatively difficult, typical, or easy temperament and then test whether the degree of between-group differences on study variables was statistically significant. Results of correlational and EFA analyses suggested that there were statistically significant differences between constructs that were correlated highly (i.e., distress tolerance, emotion regulation, and emotion dysregulation). Results of SEM analyses indicated that the relationship between difficult temperament and psychological maladjustment was explained partially by the way in which emotion regulation, emotion dysregulation, distress tolerance, and coping skills interact, with the strength of each mediating variable differing considerably. There were also differences in the power of the relationship between variables when correlational power was considered alone rather than in the context of the larger measurement and structural models. Future directions and implications are discussed.

Dedicated to my father, George Pearte, for his unwavering love and support throughout my graduate school education and the course of my life.

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## **CHAPTER ONE: TEMPERAMENT, EMOTION REGULATION, AND DISTRESS TOLERANCE AS CORRELATES OF PSYCHOLOGICAL SYMPTOMS**

Emotional regulation and distress tolerance are regulatory processes that have been the topic of recent research. Previous research (e.g. Bargh & Williams, 2007; Davidson, Jackson, & Kalin, 2000; Dillon, Deveney, & Pizzagalli, 2011; Gross, 1998; Mennin & Farach, 2007; Ochsner & Gross, 2007; Philippot, Baeyens, & Douilliez, 2006; Thompson, 1994) focused on explanations regarding the aspects of human functioning that were involved with or that defined these processes. More recently, however, there was a particular emphasis on explaining the way in which emotion regulation and distress tolerance skills could be translated into the patterns of behavior that characterized psychological symptoms and subthreshold, albeit problematic, behaviors in a variety of different populations (Aldao & Nolen-Hoeksema, 2010, 2012; Aldao, Nolen-Hoeksema, & Schweizer, 2010; Berking, Orth, Wupperman, Meier, & Caspar, 2008; Berking et al., 2011; Gratz & Roemer, 2004; Gross & John, 2003; Harrington, 2005; Howell, Leyro, Hogan, Buckner, & Zvolensky, 2010; McHugh, Hearon, Halperin, & Otto, 2011; McLaughlin, Hatzenbueler, Mennin, & Nolen-Hoeksema, 2011; Simons & Gaher, 2005; Zvolensky, Vujanovic, Bernstein, & Leyro, 2010). Nonetheless, this line of research has not yet examined whether emotion regulation and distress tolerance were two significantly correlated but independent processes and what the components of these respective constructs might be.

As a result, the current study was an effort to bridge the gaps in research pertaining to comprehensively and accurately representing emotion regulation and distress tolerance as two overlapping but different processes. The way in which these constructs were related informed the construction of a measurement model, which built upon an extant model of emotion regulation (i.e., the Adaptive Coping with Emotions [ACE] model, which will be described later; Berking,

Poppe et al., 2012). The model examined in this study considered psychological symptoms, symptoms of *DSM* Disorders, level of adaptive functioning, severity of syndromal characteristics (i.e., symptoms whose presence and severity were associated with maladaptive behavior), and severity of substance use (e.g., Achenbach & Rescorla, 2003).

Although the ACE model offered some predictive value in understanding the psychological symptoms that were displayed by different individuals, it failed to incorporate the underlying context from which individuals may function (i.e., their underlying temperament) and the means by which they cope with different stressors in their lives. In order to address this issue, one that was raised commonly in the literature, the current study explored further the way in which temperament was related to, and perhaps predictive of, emotion regulation and distress tolerance processes. Moreover, the extent to which accounting for the presence and strength of temperament traits accounted for paths between emotion regulation and distress tolerance were examined in the context of this model (depicted in Figure 1).

With respect to measuring the variables of interest for this model, temperament was represented as an underlying context or start point for the proposed model by utilizing a measure that detected the strength of different subtypes of temperament features. Next, accepted measures of emotion regulation and emotion dysregulation were used to measure each of these two constructs in the current study (Ebert, Christ, & Berking, 2013; Gratz & Roemer, 2004). Then, coping behaviors were included in the model using a measure that assessed coping in terms of seminal theories (Lazarus & Folkman, 1984). With regard to distress tolerance, Zylovensky, Vujanovic, and colleagues (2010) used review and meta-analytic findings to inform their conceptualization of a potential model that would represent distress tolerance as a latent

construct that was comprised of five defining features. These defining features were used to represent distress tolerance in separate studies previously (Zvolensky, Vujanovic, et al., 2010), but the current study examined them as manifest variables that load onto a single latent construct, which was labeled “distress tolerance” in this study. Finally, in order to measure psychological symptoms, the current study used a measure that detected psychological symptoms and its correlates by qualitative and quantitative deviations from normative standards (Achenbach & Rescorla, 2003). Each of these variables were considered here in turn.

## CHAPTER TWO: TEMPERAMENT

Until this study, temperament had not yet been examined as a contextual variable that potentially could underlie emotion regulation and distress tolerance processes, even though the connections among these constructs could prove to be important for the prediction of psychological symptoms. Chess and Thomas (1996) defined temperament as the way or manner in which individuals behave. This concept was distinct from the operational definition of the behavior that was being performed and was comprised of nine different facets: activity level (i.e., level of motor activity performed during a waking period), rhythmicity, approachability, adaptability, threshold of responsivity, reactivity, distractibility, quality of mood, and attention span/persistence. The expression of these dispositional traits begins in infancy and continues into childhood and adolescence.

The type of temperament that was demonstrated to be most problematic was what Chess and Thomas (1996) called "difficult" temperament. Individuals with this temperament style were irregular in terms of their biological functions, withdrew in response to being presented with new stimuli, were not amenable to change, exhibited affect that was marked in terms of intensity, and more frequently exhibited signs of negative mood (Chess & Thomas, 1996). Given these characteristics, it was not surprising that temperament (particularly difficult temperament) was related to the presence of psychological symptoms and a heightened propensity for adverse responses to changes in environmental conditions. Moreover, those who exhibited difficult temperament and deficits in emotion and social competencies were less sensitive to interventions

that were meant to ameliorate psychological symptoms and associated impairment (Izard et al., 2008).

Although research suggested that temperament characteristics could be expected to be stable over the course of a lifespan, having certain temperament features did not appear to condemn individuals to one fate or another. For example, one research team found that the extent to which negative emotionality was associated with problematic affective expression could vary depending on individuals' developmental stage. In this study, the influence of protective mediators did not have as strong of an effect on the relation between experiencing negative affect and psychological symptoms in older age cohorts of adolescents relative to their younger peers (Trospen & May, 2011). Consequently, temperament characteristics may not be, in and of themselves, inherently problematic. Similarly, a recent study suggested that coping behaviors (i.e., passive as opposed to active coping) completely mediated the relationship between the prominence of individuals' temperament style and the severity of their internalizing or externalizing features (Blair, Denham, Kochanoff, & Whipple, 2004). As a result, it was suggested that a poor fit between individuals' temperament characteristics and their environmental demands, particularly demands that were beyond individuals' ability to cope, were associated with poorer outcomes during childhood and adolescence (Chess & Thomas, 1996).

Other studies started to examine the connections between temperament and emotion regulation. With particular relevance to the current study, Yap, Allen, and Sheeber (2008) suggested that emotion regulation could mediate the relationship between having certain temperament and familial characteristics and developing psychological symptoms. These authors

suggested that temperament qualities could be precursors to the formation of stable features of adult personality traits, such as introversion, extraversion, and neuroticism. These adult personality traits could become predictors of future mental health outcomes in their own right (see Yap et al., 2008, for a review). Given that temperament appeared to be an important precursor to the development of emotion regulation skills and later psychological symptoms, the model tested in the current study incorporated this construct when attempting to understand individuals' presentation of psychological symptoms.

In fact, the connection between temperament and emotion regulation might have longstanding ties to early development. Because temperament characteristics present so early in life, it was difficult to say with any certainty to what extent these traits were genetically heritable versus socially learned, but research suggested that parents had an early and important influence on the development of temperament qualities that were related to the capacity to emotionally self-regulate (Marroquín, 2011). For example, abusive behavior on the part of parents was a risk factor for combined problems with emotion regulation and internalizing symptoms (Robinson et al., 2007; Shipman, Zeman, Fitzgerald, & Swisher, 2003). Moreover, it was suggested that children who exhibited symptoms of a psychological disorder might affect children's ability to regulate their own affect (at least from parents' perspectives). For example, one study indicated that mothers of young children who exhibited symptoms that met diagnostic criteria for an anxiety disorder were likely to be seen as less able to regulate their emotions by their mothers (Suveg & Zeman, 2004). Given these findings, temperament and emotion regulation might have important connections.

### **CHAPTER THREE: EMOTION REGULATION**

Definitions suggested that emotion regulation was the unconscious or conscious (automatic or controlled) process used to increase, maintain, or decrease one or more components of an emotional response. Of the available models of emotion regulation, a model proposed by Gross (1998, 1999) had the most empirical support. As part of this model, Gross (2002) defined emotion modulation as the attempt to influence the experience of emotionality, which occurred as the result of the interaction between higher- and lower-order systems. Gross (1998, 2002) also defined emotion regulation as “the [continual and dynamic] process by which individuals influence which emotions they have, when they have them, and how they experience and express them” (Gross, 1998, p. 275, cited in Leen-Feldner, Zvolensky, Feldner, & Lejuez, 2004; Marroquin et al., 2007). These processes might be automatic but also controlled.

Although emotional processes often were studied in relationship to responses to stressful situations, these processes occurred and were regulated by a system that was responsive to all emotional experiences (Mennin & Farach, 2007). According to the tenants of this model, individuals with flexible behavioral and cognitive methods of managing emotionality (or adaptive coping skills) were in the best position to maintain an effective level of functioning across contexts, since individuals were charged with regulating their emotions in environments that were always in a state of change (Barrett & Gross, 2001; Berenbaum, Raghavan, Le, Vernon, & Gomez, 2003; Cicchetti, Ackerman, & Izard, 1995; Kring & Werner, 2004; McEwen, 1998; Mennin, Holoway, Fresco, Moore, & Heimberg, 2007). Such findings suggested that further investigation into the connections among emotion regulation, distress tolerance, and coping were warranted, with some studies examining the display of emotions specifically.

Regarding the process by which emotions occurred, the presence of emotion-related cues was thought to trigger physiological, behavioral, and experiential response tendencies (Gross, 1998; Hofmann, Heering, Sawyer, & Asnaai, 2009). Emotion-response tendencies occurred quickly and before the emotion response, were short-lived, were influenced heavily by brain function, and were thought to operate as systems that ensure organisms' survival (Gross, 1998). Regarding brain function, direct experimentation with and observation of the brain suggested that the function of the prefrontal cortex, particularly the amygdala, was involved with the presence and intensity of emotional expression (Davidson et al., 2000). According to a systems perspective, neural connections that mediated communication between higher- and lower-order systems of emotion might function as feedback loops that regulate an emotional response (Gray, 1994; Ochsner & Barrett, 2001; Phelps, 2006).

With regard to physiological response tendencies, researchers cautioned against overgeneralizing the results of studies that linked neurological profiles with emotionality or affective features of pathology for several reasons. First, positive affective responses (i.e., those that logically would result in approach behavior) were demonstrated to occur in the same region of the brain as negative affective responses (i.e., those that would result in avoidance related behavior; see Davidson et al., 2000 for review). Second, in the context of his review, Davidson and colleagues (2000) pointed out that the presence of an emotion-salient cue was demonstrated to result in a higher level of brain activity in response to emotional induction relative to a control condition. These findings suggested that the strength of the relationship between neurological processes and emotional reactivity might be sensitive to context (Davidson et al., 2000). Also, at least one study suggested that the strength of individuals' subjectively self-reported emotional response



could be inconsistent with the level or intensity of brain activity that occurred in response to emotional stimulation (Philippot et al., 2006). Last, there was evidence that high levels of neurological activity following emotional stimulation and the strength of a behavioral response still might be sensitive to effortful control (Dillon et al., 2011).

With regard to experiential response tendencies, emotion regulation could occur at one of five points in the emotion generative process: situation selection, situation modification, attentional deployment, change of cognitions, or modulation of emotional response. Situation selection referred to approaching or avoiding certain individuals, places, or objects in order to regulate emotions. Situation modification referred to having made an active effort to directly modify a situation so as to alter its emotional impact. Situation modification accounted for the occurrence of events that potentially could elicit an emotional response but that did not necessarily have to result in an emotional response. Attentional deployment could take three different forms to ultimately facilitate individuals' capacity to regulate their emotional reaction. These forms included distraction (i.e., fixing attention on non-emotional aspects of the situation or moving attention from a situation altogether), concentration (i.e., the capacity to absorb cognitive resources), and rumination (i.e., attentional deployment, conceptualized as directing individuals' attention to feelings and the consequences of having emotional feelings). Cognitive change was another mechanism of change in the emotion regulation process and involved coping with an emotional experience by tailoring individuals' manner of thinking that pertains to having an emotional experience. Finally, response modulation referred to directly influencing physiological, experiential, or behavioral patterns of response to emotionality (Gross, 1998).

These processes may have connections to the display of psychological symptoms. Apart from the development of full-spectrum psychological disorders, pathological, albeit subthreshold, symptoms, such as deliberate self-injury (Chapman, Gratz, & Brown, 2006; Slee, Garnefski, Spinhoven, & Arensman, 2008), harboring a high level of persecutory ideation (Westermann & Lincoln, 2011), and being prone to panic-related symptoms (Eifert & Heffner, 2003), were correlated with having difficulty with emotion regulation or implementing emotion regulation skills (Berking, Wupperman, Reichardt, Pejic, Dippel, & Znoj, 2008). These symptoms were ameliorated by therapies that targeted emotion dysregulation (Berking et al., 2011; Berking, Meier, & Wupperman, 2010; Eifert & Heffner, 2003; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; Liverant, Brown, Barlow, & Roemer, 2008; see Mennin & Farach, 2007, for a review). Moreover, it was suggested that emotion regulation mediated the relationship between having participated in treatment and experiencing a decrease in the presence or severity of the psychological symptoms that characterized individuals' initial presentation of symptoms (Kim & Cicchetti, 2010; Slee, Spinhoven, et al., 2008).

As several researchers suggested (e.g., Gratz & Roemer, 2004; Thompson, 1994), it might be that the extent to which expressing emotionality was adaptive or maladaptive depended on the function, context, and timing of that emotional expression. Recently developed models, such as the ACE model (mentioned earlier; Berking et al., 2010; Berking, Poppe, Luhmann, Wupperman, Jaggi, & Seifritz, 2012), expanded upon earlier work (i.e., Greenberg, 2002; Gross, 1998; Larsen, 2000; Leahy, 2002) and was developed in order to measure the extent to which consciously and unconsciously applied situation-specific adaptation abilities accounted for emotion regulation skills as a whole construct. In this model, emotion regulation was a skills set

that was comprised of the following abilities: the ability to be aware of emotions, observe and label emotions, correctly interpret emotions, identify and label emotions, correctly interpret body-related sensations, understand external and internal prompts of emotions, confront situations that cue negative emotions, accept negative emotions that cannot be modified, tolerate negative emotions, and compassionately support oneself in distressing situations (Berking et al., 2012; Berking, Orth, Wupperman, Meir, & Caspar, 2008; Berking et al., 2011).

Although there might be individual differences in the specific goals that motivate emotion regulation strategy use, the strategies were employed in the service of maintaining or restoring mental health and well-being (according to the ACE model; Berking et al., 2012). Of the components that were included in the ACE model, managing negative emotionality was the most important, in that these abilities differentiated between groups of clients who had varying levels of psychiatric symptoms and who were psychologically healthy (Berking, Wupperman, et al., 2008). Among the most important findings that came from examining emotion regulation with the ACE model, one study suggested that deficits in emotion regulation skills and adverse emotionality were related, but not in a reciprocal fashion. That is, the strength of individuals' emotion regulation abilities was a significant predictor of negative emotionality at an initial and follow-up (two-week interval) time point, but the extent to which individuals expressed negative emotionality at an initial time point did not account for a significant decrease in emotion regulation at a second time point (Berking, Orth et al., 2008). Longitudinal (three-year) studies indicated that emotion regulation skills might be stable across time, even without intervention, however (Vasilev, Crowell, Beauchaine, Mead, & Gatzke-Kopp, 2009).

Regarding the relative strength of each component of emotion regulation skills, a recent mediation analysis indicated that the strength of individuals' ability to use 'modification skills' completely accounted for the relationship between awareness, clarity, sensations, understanding, readiness to confront, and self-support and the severity of psychological symptoms (Berking et al., 2012). Although it appeared as though employing skills pertaining to regulating negative affective states attenuated the severity of psychological symptoms, the impact of tolerance/acceptance strategies also appeared to be important, even after individuals' level of emotion modulation abilities were taken into account. The relationship between individuals' tolerance/acceptance skills and severity of psychological symptoms was mediated only partially by modification in a nonclinical sample and was not at all mediated in a psychiatric population. Moreover, results of the same study indicated that using an alpha level of .01 reduced the strength of the total effect of self-support, the direct effect of tolerance/acceptance, and the indirect effect of clarity to a non-significant level (Berking et al., 2012).

Acceptance and tolerance also appeared to be important to consider as a factor that could interact with other variables to ultimately predict the strength of an emotional outcome. For example, impulsivity was one variable that was linked to both negative emotionality and having access to individuals' repertoire of emotion regulation strategies (Weitzman, McHugh, & Otto, 2011). That said, one study's results suggested that, once acceptance and tolerance of negative emotionality was controlled, individuals' perceived tendency to act impulsively and to be able to use strategies to cope with aversive affective responses was associated positively and significantly with higher scores on physiological measures (i.e., heart rate; Vasilev et al., 2009).

Notably, Gross' (i.e., 1998, 1999; Ochsner & Gross, 2007) earliest writings regarding the process of emotion regulation did not differentiate between conscious and automatic thoughts or take into account the possible importance of non-conscious processes, such as motivation. Further, Bargh and Williams (2007) reported that cognitive aspects of emotion regulation were given full consideration but that the non-conscious aspects of emotion regulation needed further study. These authors reported that motivation needed to be given full consideration because emotions can act as a cue that one activity deserved priority over another or that effort should be increased in order to obtain a goal. In accordance with this view, negative emotionality motivated individuals to redirect their attention or effort without their conscious attention. Moreover, as a goal was obtained or progress was made, the experience of negative emotionality should cease, thereby appropriately resulting in a decrease in motivation to work. That was not to say that emotions only aided in goal attainment. Emotions could trigger and influence cognitive processes that motivated goal pursuit. Emotionality also could result from the interruption of goal pursuit. Therefore, emotion regulation was required to manage conflicts when attentional redirection to another goal was required (Bargh & Williams, 2007).

Evaluative processes that allowed individuals to judge whether given stimuli were positive or negative in terms of valence occurred quickly and often also occurred below the level of conscious awareness (Bargh & Williams, 2007). The effect of these informational processes were studied by experimental paradigm, with the collective body of research suggesting that automatic associations could guide future decision-making across a variety of different domains (see Bargh & Williams, 2007, for a review). That was not to say that automatic processes, which were characteristically effortless, unintentional, and uncontrollable, occurred independently of

conscious processes, which occurred as a product of intent, control, and effort. Rather, it was more likely that these processes occurred in tandem and that the extent to which emotion regulation was automatic as opposed to conscious depended on contextual features and individual differences (i.e., temperament qualities; Bargh & Williams, 2007).

Those who studied the relationship between unconscious features of emotional processes and the ability to regulate emotional expression pointed to the importance of flexibility given the provision of new information or changes to the environment in the service of adaptation (Cisler, Olatunji, Feldner, & Forsyth, 2010; Eftekhari, Zoellner, & Vigil, 2009). For instance, the findings of one study suggested that it was not the type of strategy, but the combination of strategies that individuals used, that accounted for the severity of trauma-related pathology (Eftekhari et al., 2009). Similarly, a study involving adolescents suggested that those with clinically significant difficulties with internalizing or externalizing problems did not share common difficulties in terms of cognitive emotion regulation deficits (Garnefski, Kraaij, & van Etten, 2005). Because the human environment so often changed, it was normal for individuals to automatically correct or change mood states as social situations or other environments required. Such changes reflected the motivation to maintain homeostasis so as to not appear threatening or unpredictable to others, to limit the impact of negative mood, and to participate in higher-order goal pursuit.

Regarding the use of non-conscious emotion regulation strategy use, studies often used priming paradigms that oriented unknowing participants toward a goal by giving them an emotional cue to act in an emotion-producing situation. Results of research suggested that goal attainment did not depend on conscious pursuit of the goal, which suggested that emotionality

may operate on behavior outcomes independent of attention or guidance from any source (Bargh & Williams, 2007). Further, these authors argued that, contrary to cognitive models of emotion regulation, attention processes actually might distract, rather than facilitate, emotion regulation goal attainment.

## CHAPTER FOUR: COPING PROCESSES

At this point, it was important to acknowledge that facets of the emotion regulation process (as described above) were quite similar to what others referred to as the coping process (Gross, 1998; Lazarus & Folkman, 1984). The seminal work on coping, which remained relatively separate from the work on emotion regulation, defined coping as "cognitive or behavioral efforts to manage specific external and/or internal demands that were appraised as taxing or exceeding a person's resources" (Lazarus & Folkman, 1984, p. 141, cited in Gross, 1998). In seminal works, the methods of coping fell into one of two broad categories: emotion-focused coping and problem-focused coping. Emotion-focused coping referred to the use of strategies that attempted to diffuse the impact of a stressor by targeting the emotion itself as the mechanism of change. In contrast, problem-focused coping referred to the use of strategies that targeted a problem as the mechanism of change (Lazarus & Folkman, 1984). Although individuals may regulate their emotions by coping or cope by regulating their emotions, emotion regulation processes might not always occur in response to a deficit or insult. In contrast, coping responses were utilized, by definition, as a means to deal with psychological or physical insult or stress (Gross, 1998).

Other models of coping existed as well, however. For example, other research suggested that individuals coped with stress or environmental changes by using one of four strategies: cognitive reappraisal, problem solving, rumination, and suppression. Reappraisal involved generating benign or positive interpretations or perspectives on a stressful situation as a means of reducing emotional distress (Gross, 1998). Problem solving referred to conscious attempts to change a stressful situation or contain a stressful situation's consequences. Rumination was a



negative strategy, which was conceptualized as a tendency to repetitively focus on the experience of a negative emotion (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). The other strategy that was linked to negative outcomes was suppression. Suppression had two aspects, both of which were characterized by a heightened tendency toward avoidance. It may be that individuals attempt to minimize thinking related to having experienced an unwanted emotion (Gross, 1998). The behavioral aspect of suppression often was referred to as behavioral inhibition (Leen-Feldner et al., 2004) and involved refraining from the behavioral expression of unwanted emotion. Although there was some evidence that suppression was effective in lessening sadness in the short-term (Liverant et al., 2008), rumination and suppression were linked to heightened instances of psychological symptoms and general distress (Aldao & Nolen-Hoeksema, 2010, 2012; Amstadter & Vernon, 2008).

With respect to the effect of these tendencies on developing psychological symptoms, a recent review of studies involving adults suggested that tendencies toward rumination had a large effect; the respective tendencies toward avoidance, suppression, and problem solving had a medium to large effect; and the respective tendencies toward acceptance and reappraisal were small. To further summarize, it was indicated that, although acceptance and reappraisal were considered to be adaptive and were associated inversely with psychological symptoms and poor outcomes, the relationship between suppression, rumination, and avoidance were related more strongly to arriving at adverse outcomes. Further, the extent to which these maladaptive strategies were used in order to cope with distress differentiated psychiatric groups of patients from those who did not have psychiatric diagnoses, providing more evidence of the importance of these strategies (Aldao et al., 2010). These findings indicated that emotion regulation played a

central role in the maintenance and etiology of psychological symptoms via coping strategies (Berenbaum et al., 2003; Mennin & Farach, 2007, cited in Aldao et al., 2010). Given such findings, this study intended to clarify and examine the relationship between emotion regulation and coping.

## CHAPTER FIVE: DISTRESS TOLERANCE

As individuals' engage in emotion regulation (or dysregulation) and select coping strategies, one of the proximal outcomes of interest was the degree of distress tolerance that individuals were able to achieve. Leyro and colleagues (2010) defined distress tolerance as the perceived capacity to withstand negative emotional or aversive states. They further theorized that distress tolerance may affect and be affected by a variety of processes involved in self-regulation, including attention, cognitive appraisals of distressing emotional and physical states, and emotional as well as behavioral responses to distress. Although the definition of distress tolerance may appear similar to other extant constructs already discussed here, a recent review differentiated between several constructs that could be related logically to distress tolerance (see, Leyro, Zvolensky, & Bernstein, 2010, for a full review). For example, the results of one study investigating the extent to which anxiety sensitivity (i.e., the fear of experiencing affective and physiological anxiety and consequences associated with being anxious; Bernstein, Zvolensky, Vujanovic, & Moos, 2009; Zvolensky & Otto, 2007, cited in Zvolensky, Leyro, et al., 2010) was associated independently with problematic alcohol use. Interestingly, once the role of distress tolerance was accounted for, the predictive capacity of anxiety sensitivity was reduced to a non-significant level (Howell et al., 2010).

Nonetheless, researchers expressed concern that there was overlap in the content of measures that were meant to represent distress tolerance and those that were meant to represent emotionality (McHugh et al., 2011). With respect to the relationship between distress tolerance and emotion dysregulation, Zvolensky and colleagues (2011) postulated that the former was a lower-order construct of the latter. It also was suggested that distress tolerance was a construct

that was “narrow” in comparison to emotion dysregulation (p. 6). Although these assertions regarding the nature of the distinction between distress tolerance and emotion regulation and dysregulation, respectively, made logical sense, there were not yet any studies that empirically tested these claims (Zvolensky, Bernstein, & Vujanovic, 2011). Thus, a closer look at the relationship between emotion regulation and distress tolerance was needed.

It should be noted that those who attempted to measure distress tolerance faced similar difficulties as those who attempted to measure emotion regulation. First, the ability to correctly identify distress depended on reporters’ accuracy and insight in detecting and reporting critical features of their experience of distress. The issue was complicated further by the strength of the temporal relationship between the incidence of distress and individuals’ response to distress. Despite the potential difficulties in measuring the construct, Leyro, Zvolensky, and Bernstein (2010) recently proposed a potentially promising model that would allow for the measurement of cognitive facets of distress tolerance (i.e., tolerance of uncertainty, tolerance of ambiguity, tolerance of frustration, tolerance of negative emotionality, and tolerance of physical discomfort). Although these authors suggested a compelling argument for the inclusion of these constructs as being part of a latent construct of distress tolerance, their proposed model was not tested (Leyro, Zvolensky, & Bernstein, 2010).

Within the context of their model, tolerance of uncertainty was defined as individual differences in the tendency to react emotionally, cognitively, or behaviorally to uncertain situations. Tolerance of ambiguity reflected individual differences in tolerance for complicated, foreign, and/or vague situations or stimuli. Tolerance of frustration referred to individuals’ ability to withstand aggravation. Tolerance of negative emotional states reflected individual

differences in the perceived capacity to withstand internal distress. Finally, tolerance of physical sensations reflected individual differences in the perceived capacity to withstand physical discomfort or pain (Leyro, Zvolensky, & Bernstein, 2010).

Notably, as was the case with emotion regulation, this model did not account for the role of core cognitive processes. This point seemed important since others suggested that judgment and awareness were equal determinants of how effective individuals would be in tolerating distress (Lynch & Mizon, 2010). Distress awareness referred to conscious awareness of internal states (e.g., physical sensations, emotions, action urges) that signaled distress and provided important information about the severity of threat that was posed by a given stressor. Judgment, as it was defined in this context, referred to individuals' ability to make and act on decisions to escape or continue to tolerate distress in the service of achieving individual goals, adapting, or surviving (Lynch & Mizon, 2010).

The physical component of distress tolerance was studied in a limited number of studies, particularly by researchers whose theoretical orientation explained maladaptive behavior as occurring due to experiential learning (see Hayes, Strosahl, & Wilson, 1999). Researchers induced emotionally aversive states (e.g., frustration, sadness, anxiety) and used latency of response to indicate tolerance for distress (see Leyro, Zvolensky, & Bernstein, 2010). It also may be that cognitive variables interacted with pain perception to ultimately affect whether individuals chose to escape distress. For example, participants in one study were taught briefly to use acceptance-based strategies to cope with physical distress and subsequently rated a physically distressing experimental condition as being less distressing than those who were in the

same amount of pain but had received suppression-based strategies or psychoeducation (Masedo & Esteve, 2007).

Nonetheless, distress tolerance appeared to have some relationship to the display of psychological symptoms. Although it was suggested that distress tolerance was a central component of many psychological disorders (McHugh et al., 2011) and distress tolerance skills were becoming a common component of therapeutic paradigms (e.g., Dialectical Behavior Therapy, Acceptance and Commitment Therapy), the studies that directly studied the relationship between distress tolerance and psychological symptoms or correlates of psychological symptoms were limited. Marshall-Berenz, Vujanovic, and MacPherson (2011) found that distress tolerance, which was conceptualized as the perceived or actual ability to withstand aversive physical or emotional stimuli, partially mediated the relationship between impulsivity and alcohol-based coping strategies, once PTSD symptom severity and alcohol use problems were controlled. Another recent experiment compared tolerance for sadness, frustration, and physical pain in a group of participants who had either been diagnosed with a substance use or affective disorder or were healthy control participants, with results suggesting that the type of distress that was induced and diagnostic condition were important predictors of participants' willingness to pay to escape a distressing condition (McHugh et al., 2011). Given such findings, the relationship of the aforementioned constructs (i.e., emotion regulation, coping, and distress) needed to be examined further, and a comprehensive model showing the potential paths among these constructs in predicting psychological symptoms was needed.

## **CHAPTER SIX: THE CURRENT STUDY**

Clearly, research had begun to examine emotion regulation and distress tolerance as important predictors of psychological symptoms and as processes to address in psychotherapy. Few studies examined the distinctiveness of these constructs or how they may work collectively to understand individuals' display of psychological symptoms, however. As a result, the current study had several aims. First, this study examined whether trends in a measure of emotion regulation and dysregulation were of sufficient strength to conceptualize the two constructs as significantly correlated but independent predictors of psychological symptoms. Similarly, differentiating between emotion regulation, emotion dysregulation, and distress tolerance was another primary aim of this study because there were not any scientific investigation into the specificity of these three constructs, even though most theorists and researchers agreed that these constructs overlapped but were different. By accomplishing this objective, this study also addressed a common criticism of the emotion regulation and distress tolerance literatures, which pertained to the lack of an operational definition that was informed by both theory and empiricism.

Once the relationships among these constructs were examined, this study aimed to include these constructs in a model that explained the display of psychological symptoms. This model made a unique contribution to the literature by including temperament as a potential underlying context for the paths that likely existed among emotion regulation, coping behaviors, and distress tolerance as predictors of individuals' psychological symptoms. Including temperament as a variable of interest was important because inferences about the way in which emotion regulation difficulty and distress tolerance paved the way to the development of

psychological symptoms were made on the basis of indirect measures of temperament, even though there was a consensus within the scientific community that temperament characteristics were likely to be related closely to emotion regulation and distress tolerance.

With regard to hypotheses for this study, it was anticipated that emotion regulation, coping behaviors, and distress tolerance would prove to be highly related but distinct constructs. Further, it was anticipated that temperament would be an important underlying context for emotion regulation, coping behaviors, and distress tolerance and that each of these variables would work in sequence via the paths suggested in Figure 1 to predict the constellation of internalizing and externalizing symptoms displayed by emerging adults.



## CHAPTER SEVEN: METHOD

### Participants

Participants were required to be between 18- and 25-years of age to participate. This age range encompassed emerging adulthood (Arnett, 2000), a developmental stage that often is accompanied by great changes in autonomy, education, living situation, and psychological symptoms. Equal numbers of male and female participants were sought, but no other exclusion criteria (outside of age) were used to identify eligible participants. Thus, the initial pool of recruited participants was comprised of 450 undergraduate students. In order to protect the integrity of the results based on the data collected for this study, several cases were disqualified for inclusion in the final pool of participants. First, as a method to ensure that responses were valid indications of participants' actual attitudes or feelings, those with a high rate of missing responses (< 20% of responses on the complete battery of measures or on an individual measure of a variable of interest) were excluded. In total, two participants' responses were eliminated because they gave no responses, and the responses of 73 participants were not utilized because of a high rate of missing responses. Of those whose responses were excluded, 15 of them had scores that were significantly outside of normal limits (i.e., outliers; based on the information that they did provide).

As an additional safeguard against making interpretive errors, the shape and direction of participants' responses also were examined with the goal of identifying both significant skew and kurtosis of mean scores on study measures. When using commonly accepted standards for judging whether skew and kurtosis was significant (test statistic falling outside of a range of -1 to +1), it appeared that participants' responses fell within expected limits across study measures.

With these criteria in mind, the final pool of participants included 362 undergraduate students (273 females and 89 males). The mean age of this sample was 22.05-years ( $SD=5.96$ -years), and their mean level of education was 14.12 years ( $SD=1.41$  years). Participants' average grade point average (GPA) was 3.25 ( $SD=.53$ ). Although some participants (11.2%) reported that they had been placed on academic probation at least one time in the past, the majority of participants (87.9%) reported that they never had been placed on academic probation; a small proportion of participants (1%) declined to answer. The sample of participants represented a variation of ethnic groups (56.9% White, 18.5% Latino/Hispanic, 10.1% African American, 7.4% Asian American, 4.9% Other, and 2.1% Declined to Answer). The participants' religious affiliation varied (26.7% Catholic, 10.9% Baptist, 19.8% Other type of Christian, 2.9% Islam/Muslim, 1.2% Buddhist, 1.0% Hindu, 6.8% Atheist, 9.1% Agnostic, 10.7% Other Denomination, 10.9% Declined to Answer).

The majority of participants (89.7%) reported that they were single and had never been married, but there was some variation in marital status within the sample (6.0% married and living with a partner, 1.2% divorced, 0.8% married by common law, 0.6% married but separated from spouse, 0.2% widowed, and 1.6% declined to answer). Most participants (91.9%) reported that they had no children, but a small portion of participants reported that they had at least one child (7.7%) and 0.4% declined to answer. The demographic characteristics of this sample is similar to that of other studies whose sample of participants was comprised of college students who were meant to represent emerging adults (e.g., Asberg, Bowers, Renk, & McKinney, 2008; McKinney, Donnelly, & Renk, 2008).

## Measures

### *Temperament*

The *Dimensions of Temperament Scale-Revised for Adults (DOTS-R Adult*; Windle & Lerner, 1986) was used to assess participants' reports of their own temperament. This 54-item questionnaire measured nine attributes of temperament (the Cronbach alphas are from Windle & Lerner, 1986), including *Activity Level-General* ( $\alpha = .84$ ), *Activity Level-Sleep* ( $\alpha = .89$ ), *Approach-Withdrawal* ( $\alpha = .85$ ), *Flexibility-Rigidity* ( $\alpha = .78$ ), *Mood Quality* ( $\alpha = .89$ ), *Rhythmicity-Sleep* ( $\alpha = .78$ ), *Rhythmicity-Eating* ( $\alpha = .80$ ), *Rhythmicity-Daily Habits* ( $\alpha = .62$ ), *Distractibility* ( $\alpha = .81$ ), and *Persistence* ( $\alpha = .74$ ; Windle & Lerner, 1986). When completing the DOTS-R Adult, participants rated each item using a four-point Likert scale that ranges from *Usually False* (1) to *Usually True* (4). High scores on the temperament scales indicated higher levels of each temperament dimension (i.e., higher activity level, more adaptability or greater tendency to approach new situations, people, or events, greater flexibility in the external environment, greater level of positive quality of mood, highly regular sleep patterns, highly regular eating habits, highly regular daily activities and habits, lower distractibility, and a higher persistence for activity, respectively). Although all nine dimensions were considered in this study, *Activity Level-General*, *Flexibility-Rigidity*, and *Mood Quality* were of particular interest, as these dimensions were related closely to having "difficult" temperament. The Cronbach alpha estimates for each of the three dimensions of difficult temperament that were used in this study were within an acceptable range and were as follows: *Activity Level-General* ( $\alpha = .83$ ), *Flexibility-Rigidity* ( $\alpha = .86$ ), and *Mood Quality* ( $\alpha = .75$ ).

### *Emotion Regulation*

The *Emotion Regulation Skills Questionnaire* (ESRQ; Ebert, Christ, & Berking, 2013), a 27-item questionnaire that assessed the strength of emotion regulation skills across several domains during the past week, was used as one measure of emotion regulation. Items were measured on a five-point Likert-type scale, with response options ranging from 0 (*Not At All*) to 4 (*Almost Always*). Each item loaded onto one of seven specific subscales and also was used to calculate a *Total* score, which was computed by averaging scores on all items. The *Awareness* subscale measured the extent to which individuals acknowledged and were aware of emotions that they feel. The *Clarity* subscale measured the extent to which individuals were clear about which emotion(s) that they experience. The *Understanding* subscale measured the extent to which individuals understood why they feel emotional at any given time over the past week. The *Sensation* subscale measured the extent to which individuals felt that their emotions are good indicators for how they are feeling. The *Modification* subscale measured the extent to which individuals were able to influence their feelings. The *Acceptance* subscale measured the extent to which individuals were able to accept their emotions, and the *Tolerance* subscale measured the extent to which individuals were able to tolerate the experience of emotionality. The *Compassionate Self-Support* subscale measured the extent to which individuals were able to encourage themselves during periods of emotionality. Finally, the *Readiness to Confront* subscale measured the extent to which individuals were able to accomplish their goals despite their emotional feelings. The *Total* score also was examined as part of our analyses. The Cronbach alpha estimates for the *Total* score ( $\alpha = .95$ ) and for each of the nine dimensions of emotion regulation (i.e., *Emotional Awareness*:  $\alpha = .70$ , *Sensation*:  $\alpha = .81$ , *Clarity*:  $\alpha = .81$ , *Understanding*:  $\alpha = .81$ , *Acceptance*:  $\alpha = .71$ , *Resilience*:  $\alpha = .82$ , *Readiness to Confront*:  $\alpha =$

.76), *Self-Support*:  $\alpha = .82$ , and *Modification*:  $\alpha = .77$ ) were within an acceptable range. Previous studies indicated that the ESRQ's psychometric properties were sound in terms of reliability and validity (see Berking et al., 2012).

Emotion dysregulation was measured by using the *Difficulties in Emotion Regulation Scale* (DERS; Gratz & Roemer 2004), a 36-item measure that assessed emotion regulation difficulties specifically during times that individuals were emotionally upset. Items were measured on a five-point Likert-type scale, with response options ranging from 1 (*Almost Never/0-10% of the Time*) to 5 (*Almost Always/91-100% of the Time*). The DERS yielded an overall total score and six subscale scores. The *Nonacceptance* subscale measured the extent to which individuals had a secondary negative emotional response as a result of having experienced a negative emotion. The *Goals* subscale was a measure of the extent to which individuals had difficulty concentrating or engaging in goal directed behavior when experiencing negative emotions. The *Lack of Awareness* subscale measured the extent to which individuals could attend to and acknowledge emotions. The *Strategies* subscale indicated the extent to which individuals believed that there was little that could be done in order to regulate their emotions effectively once they were upset. The *Impulse* subscale was indicative of the extent to which individuals felt that they could remain in control at times that they were experiencing negative emotions. The *Clarity* subscale indicated the extent to which individuals were clear about and know which emotions they were experiencing. The *Total* score was used in this study.

The DERS demonstrated good test-retest reliability in a previous study (Gratz & Roemer, 2004), and the *Total* and subscale scores were internally consistent (Axelrod, Perepletchikova, Holtzman, & Sinha, 2011; Berking et al., 2012; Gratz & Roemer, 2004). Initial scale validation

also suggested that the DERS demonstrated adequate construct and predictive validity (Gratz & Roemer, 2004). The Cronbach alpha estimates for the *Total* score ( $\alpha = .94$ ) well as for each of the six dimensions of emotion dysregulation (*Awareness*:  $\alpha = .82$ , *Clarity*:  $\alpha = .80$ , *Nonacceptance*:  $\alpha = .90$ , *Goal Orientation*:  $\alpha = .82$ , *Strategy Use*:  $\alpha = .91$ , and *Impulsivity*:  $\alpha = .86$ ) were within an acceptable range.

### *Coping Behavior*

The *Ways of Coping Questionnaire* (WOC; Folkman & Lazarus, 1985) was a 66-item self-report measure that was used to measure participants' thoughts and acts that they usually employ to manage internally and externally stressful situations. Responses were endorsed using a four-point Likert scale, with response options ranging from 1 (*Does Not Apply*) to 4 (*Applies a Great Deal*). This scale consisted of 16 distracter items and 50 items assessing coping behaviors. Higher ratings on coping items indicated a higher likelihood that a participant relied on that given process to cope with stress. The 50 coping items load onto either a *Problem-Focused* factor or an *Emotion-Focused* factor. Eight subscales, including *Confrontative Coping*, *Distancing*, *Self-Controlling*, *Seeking Social Support*, *Accepting Responsibility*, *Escape-Avoidance*, *Planful Problem-Solving*, and *Positive Reappraisal*, also were derived. A recent meta-analysis suggested that the WOC's reliability may be somewhat variable (Kieffer & MacDonald, 2011), but it also was noted that the WOC was an apparently psychometrically sound measure of coping strategies in at least a few studies that included the measure as part of an assessment battery (Asberg et al., 2008; Hamilton, Stewart, Crandell, & Lynn, 2009).

The Cronbach alpha estimates for many dimensions of coping behaviors were within an acceptable range and were as follows: *Problem-Solving* ( $\alpha = .82$ ), *Socialization* ( $\alpha = .76$ ),

*Positive Reframing* ( $\alpha = .74$ ), *Detachment* ( $\alpha = .72$ ), *Wishful Thinking* ( $\alpha = .80$ ), and *Self-Negative Thinking* ( $\alpha = .70$ ). The other three WOC scales' alphas, however, fell below accepted standards (*Tension Reduction* [ $\alpha = 0.33$ ], *Keep to Self* [ $\alpha = 0.63$ ], and *Self-Blame* [ $\alpha = 0.64$ ]). Steps were taken to elucidate the reason(s) for the low alpha levels and (if possible) to correct issues that could affect a scale's alpha level. Specifically, an inter-item reliability analysis did not point to any obvious reasons for the lack of internal consistency that was observed for the Tension Reduction subscale, but the reliability analyses coupled with the results of a follow-up factor analysis suggested that the alpha could be improved by combining items that comprised the Keep to Self and Self-Blame subscale. Thus, a composite score was calculated, and the value of the alpha (.69) that corresponded with the composite measure fell within acceptable limits.

#### *Distress Tolerance*

The *Discomfort Intolerance Scale* (DIS; Schmidt, Richey, & Fitzpatrick, 2006) was a five-item self-report measure that was used to measure participants' intolerance for physical discomfort. Items were endorsed using a six-point Likert-type scale, ranging from 1 (*Not At All Like Me*) to 6 (*Extremely Much Like Me*). In addition to a *Total* score, items loaded onto one of two subscales (i.e., *Discomfort Intolerance* and *Discomfort Avoidance*). A sample item from the *Discomfort Intolerance* subscale was "I have a high pain threshold." A sample item from the *Discomfort Avoidance* subscale was "I push myself to the physical limit when I exercise." The *Total* score was used in this study.

Although the DIS demonstrated good test-retest reliability and was demonstrated to be an internally consistent measure (with Cronbach alphas ranging from .70 to .96 on the *Total* scale and two subscales; Leyro, Zvolensky, & Bernstein, 2010; Schmidt et al., 2006), the Cronbach

alpha estimate for participants' Total score was quite below normal limits for this sample of participants ( $\alpha = .38$ ). Scoring procedures (e.g., item reversal rules) were re-checked, and it did not appear that the low alpha was due to scoring error.

Examination of the results of a reliability analysis suggested that more than one of the seven items that comprised the scale was correlated inversely, with the strength of the correlation between two of the seven items being of particular note. Specifically, there was a strong correlational relationship ( $r = .73$ ) between the extent to which one agreed that “[he or she has] a high pain threshold” and the extent to which one agreed that “[he or she] can tolerate a good deal of physical discomfort.” In order to examine whether scores on these two items were internally consistent to the extent that the items could be used as an abbreviated measure of tolerance for physical distress, a Cronbach's alpha estimate was calculated. The absolute value for the estimate was well above the typically utilized cutoff ( $\alpha = .86$ ). Given our desire to use measures that were both psychometrically sound and closely rooted to empirical work, the decision was made to generate a summated score of the two items, which will be referred to as an abbreviated measure of physical discomfort (variable name DIS.Abb).

The *Distress Tolerance Scale (DTS)* (Simons & Gaher, 2005) was a 15-item measure that was used to assess participants' perceptions of their own level of tolerance. Responses to each item of the DTS were measured on a five-point Likert scale, which ranged from 1 (*Strongly Agree*) to 5 (*Strongly Disagree*). Higher responses suggested that individuals endorsed a higher level of tolerance. Each item of the DTS loaded onto one of four subscales, which reflected perceived ability in a given domain. *Absorption* referred to individuals' ability to divert their attention from the experience of distress. An example item from this subscale was “When I feel



distressed or upset, all I can think about is how bad I feel.” *Tolerance* referred to individuals’ appraisal of their ability to withstand emotional distress. An example item from this subscale was “Feeling distressed or upset is unbearable to me.” *Appraisal* referred to the ability to manage the experience of subjective distress. An example of an item from this subscale was “I can tolerate being distressed or upset as well as most people.” *Regulation* referred to individuals’ perception that they can alleviate distress through their own efforts. An example item from this subscale was “I’ll do anything to avoid feeling distressed or upset.” A *Total* composite score composed of all items was used in this study.

Initial psychometric testing indicated that scores on the DTS were stable across time, were internally consistent, and offered incremental validity above and beyond extant measures of distress tolerance (Simons & Gaher, 2005). More recently completed studies also suggested that the DTS was both reliable and valid (Kutz, Marshall, Bernstein, & Zvolensky, 2010; Wray, Simons, Dvorak, & Gaher, 2012). The Cronbach alpha estimates for the *Total* score ( $\alpha = .94$ ) well as for each of the four dimensions this aspect of distress tolerance (*Tolerance*:  $\alpha = .82$ , *Appraisal*:  $\alpha = .80$ , *Regulation*:  $\alpha = .90$ , and *Absorption*:  $\alpha = .82$ ) were within an acceptable range.

The *Frustration Discomfort Scale (FDS)* (Harrington, 2005) was a 28-item measure that was used to assess participants’ frustration intolerance (i.e., a latent component of distress tolerance). The FDS’s items were measured on a five-point scale ranging from 0 (*Absent*) to 4 (*Very Strong*), with higher ratings suggesting a higher level of intolerance. Each of the 28 items loaded onto one of three subscales. The *Emotion Intolerance* subscale measured intolerance of emotional distress. An example item from this subscale was “I can’t bear to feel that I am losing

my mind.” The *Entitlement* subscale measured intolerance of unfairness and thwarted efforts to attain gratification. An example item from this subscale was “I can’t bear it if other people stand in the way of what I want.” The *Discomfort Intolerance* subscale measured intolerance for everyday stress and hassles. An example item was “I need the easiest way around problems.” The *Achievement Intolerance* subscale measured intolerance for impediments to achievement-related goals. An example item from this subscale was “I can’t tolerate any lapse in my self-discipline.” The *Gratification* and *Fairness* subscales were latent factors that were embedded in the *Achievement Intolerance* subscale. An example item from the *Fairness* subscale was “I can’t stand being taken for granted.” An example from the *Gratification* subscale was “I can’t stand having to wait for things I would like *now*” (Harrington, 2005). A *Total* composite score of these items was used in this study.

Previous studies indicated that the subscales comprising the FDS had good subscale reliabilities, with Cronbach alphas across subscales ranging from .84 to .89 (Harrington, 2005, cited in Stanković & Vukosavljević-Gvozden, 2011). Additionally, results of Harrington’s (2006) study pertaining to further exploring this scale’s psychometric properties suggested that the scale was valid in terms of convergent and incremental validity. For the current study, the Cronbach alpha estimates for the *Total* score ( $\alpha = .93$ ) well as for the subscales that measure tolerance for sources of frustration-based distress (*Unpleasant Emotions*:  $\alpha = .81$ , breaches to rights of *Entitlement*:  $\alpha = .81$ , *Fairness*:  $\alpha = .82$ , *Achievement*:  $\alpha = .76$ , and *Gratification*:  $\alpha = .82$ ) were within an acceptable range.

The *Multiple Stimulus Types Ambiguity Tolerance Test* (MSTAT-I; McLain, 1993) was a 22-item self-report questionnaire, which was used to measure another facet of participants’

distress tolerance. The MSTAT's *Total* score reflected participants' manner of reaction to ambiguous stimuli and the strength of their reaction in the face of ambiguous situations. Items were measured on a five-point Likert scale, with response options ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Higher scores indicated a lower ability to tolerate ambiguity. An example item from the MSTAT was "I prefer familiar situations to new ones." The *Total* score was used in this study.

Results of initial scale development and subsequent studies suggested that the MSTAT was internally consistent (with Cronbach alphas ranging from .70 to .86; DeRoma, Martin, & Kessler, 2003; McClain, 1993; Myers et al., 2009). Research also suggested that the MSTAT demonstrated both predictive and incremental validity (Bors, Gruman, & Shukla, 2010). For the current study, the Cronbach alpha estimate for the *Total* score was within acceptable limits ( $\alpha = .79$ ).

The *Intolerance of Uncertainty Scale-Short Form* (IUS-S; Carleton, Norton, & Asmundon, 2010) was a 12-item measure derived from a longer measure of 27 items that measured participants' ability to handle uncertainty (by Carleton, Gosselin, & Asmundon, 2007). The correlation between the short- and full-length forms was high ( $>.90$ ), and the IUS-S had the added advantage of being less taxing to participants. Items were measured on a five-point Likert scale ranging from 1 (*Not At All Characteristic of Me*) to 5 (*Entirely Characteristic of Me*), with higher scores indicating a higher degree of intolerance for uncertainty. Items loaded onto one of two scales, including the *Prospective* subscale (i.e., a measure of the extent to which individuals were tolerant of future uncertainty) and the *Inhibitory* subscale (i.e., a measure of the extent to which intolerance for uncertainty inhibited behavioral responses). An example item from the

*Prospective* subscale was “I can’t stand being taken by surprise.” An example item from the *Inhibitory* subscale was “The smallest amount of doubt can keep me from acting.” A *Total* score was used in this study.

The *Total* score and the subscale scores demonstrated good divergent validity and also were reliable in previous studies (Carelton, Gosselin, & Amundson, 2010; Gosselin et al., 2008). Initial scale validation also suggested that the IUS and its subscales were internally consistent ( $\alpha$  ranged from .85 to .92; Carelton et al., 2007). For the current study, the Cronbach alpha estimate for the *Total* score was within acceptable limits ( $\alpha=.87$ ).

### *Psychological Symptoms*

The *Young Adult Self-Report (YASR)* was a 114-item self-report measure that was used to assess participants’ adaptive functioning and their experience of emotional, behavioral, and psychological symptoms. The adaptive functioning items reflected the extent to which individuals successfully navigated their friendships, romantic relationships, familial relationships, jobs, and educational environment. The YASR also yielded a mean score across the adaptive functioning subscales, which was thought to reflect participants’ average level of adaptive functioning. Substance Use subscales measured levels of tobacco, illicit drugs, and alcohol, respectively. Empirically based subscales measured anxiety/depressive features, behavioral isolation, somatic complaints, thought problems, attention problems, aggressive behavior, rule-breaking behavior, and intrusive difficulty with internalization and externalization. Additionally, the YASR’s empirically based subscales yielded an average score that indicated the level of overall severity across the aforementioned areas of difficulty. In particular, the *DSM* composite scores were used in this study. Scores that were above indicated cutoffs suggested

clinically significant impairment in a given domain. Achenbach and Rescorla (2003) provided initial evidence for the YASR's reliability and validity. The YASR's utility was demonstrated to be at least equal to that of extant measures of clinically and statistically significant problems (Achenbach, Bernstein, & Dumenci, 2005).

### Procedure

Prior to data collection, this study was reviewed and approved by the university institutional review board, and all procedures were completed in compliance with the IRB's rules and regulations. Participants enrolled via SONA system, the online extra credit system in the Department of Psychology. Each participant was afforded the opportunity to read a brief statement of consent for study participation and then he or she was required to use the computer to indicate both an understanding and willingness to comply with the terms of study participation. Once they consented to participate in the study, with their consent having been indicated by clicking the word "agree" after reading the study description, they were directed to the measures through a secure data collection and management site (Survey Gizmo). Upon completion of study enrollment and participation, SONA system identification numbers were utilized to allow for the allocation of participants' extra credit compensation for their participation in the study. Upon completion of the measures, participants received an electronic debriefing.

## CHAPTER EIGHT: RESULTS

### Descriptive Statistics

Means, standard deviations, and estimates of internal consistency for all measures were calculated so that findings could be put into context. See Table 1.

### Correlation Analyses

Those measures that were retained after reliability analyses were conducted were included in correlation analyses. The results of these analyses were examined largely as a validity check. More specifically, we sought to ensure that measures of the same construct or of different facets of a latent construct indeed were related significantly. A complete table of correlation analyses was provided (see Table 2). Given that particular attention was paid to those measures that were postulated to represent aspects of the same construct or conceptually similar constructs, the strength of the relationship between variables informed the next step of these analyses, but at least one observed relationship warranted more specific discussion.

First, regarding the DOTS subscales, *Activity Level-General*, *Flexibility-Rigidity*, and *Mood Quality* were of particular interest as these dimensions were demonstrated to be related closely to having ‘difficult’ temperament. Correlation analyses suggested that Flexibility-Rigidity was correlated significantly with both Mood Quality and Activity Level-General; however, the relationship between Mood Quality and Activity Level-General was non-significant. This finding coupled with the results of an exploratory factor analysis, which included all three subscales (EFA to be discussed in further detail below), suggested that difficult

temperament was likely to be best represented by a single construct (i.e., the Flexibility-Rigidity subscale).

Second, regarding the DERS, there were two subscales whose correlations with other DERS subscales were negative. Further investigation indicated that the items that comprised these two scales related to general emotion regulation abilities, whereas the other subscales pertained to state-dependent emotion-regulation abilities (e.g., each statement was prefaced with “when I am upset”). Also, although the strength of the relationships between the DERS Clarity and Awareness subscales and other DERS scales were, for the most part, statistically significant, the absolute value of the correlation statistics suggested that these two measures had weaker relationships with other DERS subscales. Thus, the decision was made to disclude the DERS Clarity and DERS Awareness subscales from consideration as components of a latent variable that eventually was labeled “Emotion Dysregulation.”

Third, regarding the Young Adult Self-Report (YASR), several correlation relationships between and across facets of psychological adjustment were of note. Although the scales measuring symptoms of specific disorders were not the only terms of interest for capturing psychological maladjustment, DSM-related symptoms were a necessary component to the diagnosis of clinically significant psychological problems. Because not one of the measures of impairment to adaptive functioning was correlated significantly with all three of the DSM-oriented scales that were retained as indicators of significant clinical symptoms, the decision was made to disclude the measures of adaptive functioning from consideration as potential components of the latent variable that was eventually labeled “Clinical Symptoms” in the final model. The lack of consistent clinically significant relationships between the DSM scale scores

and scores on the substance use scales, in conjunction with the high number of missing summated scores on the substance use subscales (discussed in the Descriptive Statistics section above), also was used to inform the decision not to consider the substance use subscales as components of the latent variable labeled “Clinical Symptoms.”

### Structural Analysis Procedure

As previously mentioned, a two-step approach (Anderson & Gerbing, 1988) was taken in order to formulate and test the model depicted in Figure 1. To best ensure that the measurement model was psychometrically sound, information from a series of exploratory factor analyses were utilized to inform the construction of the individual latent variables. Specifically, depending on the construct, the absolute value of the factor loadings corresponding to individual subscales that comprised a total measure or groups of total scores on measures that were thought to measure different aspects of a given construct were utilized in order to best ensure convergent validity. Extant standards for retaining a given measure as part of a latent construct were meant to ensure that the latent construct demonstrated adequate convergent validity (Garson, 2012).

These standards pertain most directly to factor loadings within the Pattern Matrix, with a factor loading of  $\geq .70$  or higher being the criterion for inclusion. That said, it was suggested further that the composition of the Structure Matrix and Factor Matrix before rotation also be considered as the latent variables were constructed. Because results suggested that a few of the constructs that were conceptualized as latent indicators were best represented by a single primary factor, which precluded the need for oblique rotation and, thus, yielded neither a Pattern Matrix or a Structure Matrix, the suggested standard for retaining a scale as an indicator was generalized



to a typical factor matrix in these instances. Unless otherwise specified, a subscale was no longer considered for inclusion in the final composite of scales that comprised a given latent construct if its factor loading was below the required level.

### Measuring and Representing Dimensions of Temperament

In order to ensure that temperament was represented adequately, a factor analysis that included all three dimensions of difficult temperament was conducted. Results of this analysis suggested that difficult temperament would be best represented by participants' scores on the DOTS Flexibility-Rigidity subscale, as the factor loading on this subscale alone reached an adequate level for inclusion in the final SEM model (.82). The factor was labeled "Temperament" and accounted for 28.08% of the variance.

### Measuring and Representing Emotion Regulation and Emotion Dysregulation

In order to test the assertion that emotion regulation represented a different latent construct than emotion dysregulation, an initial exploratory factor analysis was completed, with results indicating that all facets of emotion regulation loaded onto a primary factor. This primary factor of emotion regulation explained 49.27% of the variance, and the four facets of emotion dysregulation accounted for 15.19% of the variance. Together, both factors accounted for 64% of the variance. Because one factor loading was  $\leq .70$ , a second EFA was completed without the subscale whose factor loading was below the cutoff. With this subscale omitted, there was a slight improvement in terms of the amount of variance explained by each factor, with the factor containing the nine dimensions of emotion regulation explaining 52.05% of the variance, the

factor containing the three remaining aspects of emotion dysregulation accounting for 14.53% of the variance, and both factors accounting for 66.58% of the variance (Figure 2).

### Measuring and Representing Distress Tolerance

In order to test the five-factor model of distress tolerance put forth by Zvolensky, Vujanovic, et al. (2010), an EFA that included one total score for each of the five proposed facets of distress tolerance was conducted. Although it was true that not all of the factor loadings corresponding to the five measures reached .7, which was mentioned previously as a criterion for inclusion as an indicator of a latent variable, the factor loadings corresponding to all but one measure (the DIS.Abb) were of sufficient strength to justify the use of a less stringent numerical cutoff. First, and perhaps most importantly, there was an empirical basis for retaining this model's structure. Second, four of five variables loaded onto a single factor at a level that was typically suitable for retention in EFA analyses (i.e.,  $\geq .4$ ), and the amount of common variance shared between variables at extraction was above typically utilized standards for inclusion in model building analyses (Field, 2009). Thus, that the decision was made that distress tolerance would be represented as a single factor comprised of four components, which accounted for 47.99% of the variance (Figure 3).

In order to test the view that distress tolerance was distinct from both emotion regulation and dysregulation, a second EFA was conducted after the soundness of distress tolerance as a latent construct was tested. Adding the distress tolerance constructs to a factor structure that previously only included variables comprising both emotion regulation and emotion dysregulation decreased the amount of variance accounted for by several percentage points (i.e.,

|6|%), decreased the level of communality of several constructs at extraction, and lowered the absolute value of several factor loadings after rotation. Thus, in line with the hypothesized model, distress tolerance was treated as a latent variable that was distinct both from emotion regulation and emotion dysregulation.

### Measuring and Representing Coping Behaviors

An EFA was conducted in order to explore how to best represent participants' complete coping behavior repertoire (i.e., internal versus external, global versus specific strategy use) as a latent construct within the measurement and structural models. Results of an initial EFA indicated that the variable eventually labeled "Coping Behaviors" was comprised of two factors (Figure 4). That is, external means of coping with stressful events (i.e., problem-solving, seeking support from others, and actively looking for positive aspects of having to cope with the stressful event) fell onto one factor, whereas reliance on internal means to cope with stressful events (i.e., self-blame, wishing for different circumstances, detaching from the situation, and keeping to one's self) fell onto a separate factor. Both factors accounted for 57.35% of the variance.

That said, Coping Behaviors was underidentified in the initial measurement models. Thus, two additional EFAs were completed with the aim of examining whether a different factor structure could represent adequately the construct and potentially fit into the larger model. The first EFA included all of the variables that were included in the two-factor model, but this model was constrained to produce a one-factor solution that accounted for 41.17% of the variance (Figure 5). Although this model of coping behaviors was identified in the larger model, modification indices and the absolute value of regression weights within the model suggested

that refining this particular variable may improve model fit. Thus, a third EFA was conducted, with results suggesting an alternative and arguably improved one factor model that included three types of coping behaviors (Focusing on Positives, Socialization, and Focusing on Problem-Solving). This model accounted for 51.09% of the variance (Figure 6).

### Measuring and Representing Psychological Symptoms

In addition to taking the steps that were mentioned in previous sections (i.e., Correlation Analyses and Descriptive Statistics), a final set of EFAs were conducted with the aim of ensuring that the YASR's DSM subscales comprised a structurally sound representation of psychological symptoms. The initial EFA included all of the DSM scales that represented distinct disorders (e.g., ADHD, Depression, Anxiety, Antisocial Personality Disorder, Avoidant Personality Disorder). One factor that represented 37.13% of the variance emerged. Because one-factor models precluded the need for rotation, the Pattern Matrix could not be examined. It was noted, however, that the absolute values of both the communality statistic and factor loadings were well below the cutoffs that were utilized typically for construct validation analyses (Field 2009; Garson, 2013). The results of the initial EFA (i.e., the content of the communality and factor loading tables) were used to inform the content of a second EFA. One factor, which accounted for 55.71% of the variance, was comprised of DSM Depressive Disorder, DSM Anxiety Disorder, and DSM Avoidant Personality Disorder symptoms and was retained for inclusion in the final model (Figure 7). The communalities statistics and factor loadings corresponding to each of the three variables within the second EFA were within normal limits.

## Constructing and Testing the Measurement and Structural Models

The results of the EFAs answered the question of how to best represent the constructs examined in this study. Then, the next step in the process was to examine how the constructs interacted as components of a model that predicted psychological symptoms in young adults. At this point, it should be noted that the composition of the latent variables, particularly that which represented distress tolerance, differed from the hypothesized model depicted in Figure 1.

Given the results of the EFAs and correlational relationships between latent constructs, (Table 4) it could be inferred safely that the hypothesized model would not be the best fit for accurately representing the process by which difficult temperament translates into the expression of psychological symptoms. Temperament was correlated significantly and positively with emotion regulation. Temperament also was correlated significantly and negatively with emotion dysregulation, distress tolerance, and the degree of psychological symptoms. In turn, emotion regulation was correlated significantly and negatively with emotion dysregulation, distress tolerance, and psychological symptoms. Emotion regulation also was correlated significantly and positively with coping behaviors. Coping behaviors were not related significantly to any of the other variables (i.e., temperament, emotion dysregulation, distress tolerance, or psychological symptoms). Further, emotion dysregulation was correlated significantly and positively with both distress tolerance and psychological symptoms. Distress tolerance and psychological symptoms also were related significantly and positively. Thus, no further steps were taken to test the hypothesized model as it was depicted in Figure 1.

Instead, the composition of our initial measurement model was informed by the results of the EFAs and included the following latent variables and indicators: one manifest construct

(Difficult Temperament, which was represented by the score on the DOTS Flexibility-Rigidity subscale) and several latent constructs (Emotion Regulation, Emotion Dysregulation, Coping Behaviors, Distress Tolerance, and Psychological Symptoms). Emotion regulation was represented by nine indicators (the subscale scores on each of the ESRQ's subscales). Emotion Dysregulation was represented by three indicators (three DERS subscales representing different facets of emotion dysregulation). Initially, Coping Behaviors were represented in the initial model by six variables (three of which appeared to represent internal means of coping with stress and three of which appeared to represent external means of coping with stress). Distress tolerance was represented by the four following indicators: the FDS total score (frustration tolerance), the DTS total score (perceived ability to persevere through distress), the IUS total score (tolerance for uncertainty), and the MSTAT total score (tolerance for withstanding ambiguity). Last, Psychological Symptoms, which was our outcome variable, was represented by three variables, which were three subscales of the YASR that represented symptoms of three distinct DSM disorders (avoidant personality disorder, anxiety-related symptoms, and depressive symptoms).

CFAs then were conducted on an initial full measurement model (Figure 8; RMSEA=.08; CFI = .84, PRATIO =.86) and then on an initial full structural model (Figure 9; RMSEA =.09, CFI =.79, PRATIO = .86). The CFI for this structural model was below the typically utilized cutoff, which was taken to indicate that the model's fit was poor and should be modified if at all possible. Examination of modification indices, regression weights, and re-examination of the EFA results used to construct latent variables informed a few modifications to the composition of variables included in the model. Specifically, the relatively low regression weights between

Coping Behaviors and several other variables, including the outcome variable, in the measurement model informed the decision to trim the indicators for internal coping methods from the Coping Behaviors latent construct.

With these modifications to the Coping Behaviors latent variable, a second measurement model was constructed, with the fit of this model being much improved (Figure 10; RMSEA = .08, CFI = .91, PRATIO = .85). The content of this model thus informed the construction of a second structural model (Figure 11; RMSEA = .09, CFI = .90, PRATIO = .85). Not only was the absolute value of each fit index within normal limits, the strength of several of the regression coefficients also were observed to have improved.

The direction and strength of the unstandardized paths that comprised the final model suggested that temperament was not significantly predictive of the degree of psychological symptoms experienced by this sample ( $\beta = -.343, p = .525$ ). Moreover, emotion regulation ability was not significantly predictive of psychological symptoms ( $\beta = -.595, p = .271$ ). Emotion dysregulation and distress tolerance were, however, both significant predictors of psychological symptoms ( $\beta = 2.606, p < .001$  and  $\beta = 4.012, p = .008$ , respectively). Although temperament was a significant predictor of distress tolerance ( $\beta = -.222, p < .001$ ), temperament was not a significant predictor of coping behaviors ( $\beta = .008, p = .859$ ). Coping behaviors were not a significant predictor of distress tolerance ( $\beta = .036, p = .327$ ), but both emotion regulation abilities and degree of emotion dysregulation were significant predictors of distress tolerance ( $\beta = -.094, p = .012$  and  $\beta = .295, p < .001$ , respectively). Last, emotion dysregulation was not significantly predictive of coping behaviors ( $\beta = .079, p = .107$ ), but emotion regulation was predictive of coping behaviors ( $\beta = .426, p < .001$ ).

## Mean-Based Exploratory Between-Group Comparisons: Understanding the Model

### Further

On the basis of the results of the EFA analyses, the decision was made to utilize the DOTS Flexibility-Rigidity subscale to represent temperament for the following analyses. Possible response options on the individual items that comprised the DOTS Flexibility-Rigidity scale ranged from 1 (*usually false*) to 4 (*usually true*). Obtained DOTS Flexibility-Rigidity scores from all 362 participants ranged from 1.00 to 4.00 ( $M = 2.79$ ;  $SD = .64$ ). Statistical tests indicated scores on the DOTS Flexibility-Rigidity scale were normally distributed (Skew test statistic =  $-0.18$  [ $SE = .13$ ]; Kurtosis test statistic =  $-.46$  [ $SE = .26$ ]). In order to examine whether differences based on the degree of temperament-based flexibility-rigidity were associated with meaningful differences on variables of interest, mean-based cutoffs were used to classify participants into one of three groups: “difficult temperament”, “typical temperament”, and “easy temperament.” Specifically, those whose scores on the DOTS Flexibility-Rigidity scale were greater than one standard deviation above the mean (i.e.,  $> 3.43$ ) were classified as having “difficult temperament” ( $N = 50$ ), whereas those whose scores on the same scale were one deviation or more below the mean (i.e.,  $< 2.13$ ) were classified as having “easy temperament” ( $N = 54$ ). All other participants ( $N = 258$ ) were classified as having “typical temperament”.

To determine if participants of different temperaments differed significantly on the study variables, a multivariate analysis of variance (MANOVA) was performed on the data. The independent variable (IV) was participant group (difficult versus easy versus typical temperament). Dependent variables (DVs) were: all ESRQ subscales (i.e., ability to regulate emotional awareness, regulate emotion-based sensation, possess a sense of clarity about



emotional experiences, understand emotional experiences, accept emotional experiences, ability to be emotionally resilient, ability to be self-supportive of one's emotional experiences, and ability to modify one's emotional experiences), the three DERS subscales retained from EFA and SEM (i.e., tendencies to respond in an impulsive manner when upset, tendency to be unaccepting of upset feelings, and inability to use strategies to cope with upset feelings), the six subscales retained from the Ways of Coping Scale retained from EFA and SEM (i.e., having recently coped with a stressful event by problem-solving, seeking social support, focusing on positive aspects of the stressful event, engaging in wishful thinking, detachment from thinking or acting as if the stressful event took place, and engaging in negative thinking toward one's self or blaming one's self for the occurrence of the stressful event), the Multiple Stimulus Type Ambiguity Test (or the ability to tolerate ambiguity), the Intolerance for Uncertainty Scale (or the ability to tolerate uncertainty), the Frustration Discomfort Scale (or the tolerance for having to withstand frustration), and the Distress Tolerance Scale (or the ability to withstand distress), and the YASR scales that were retained (i.e., symptoms of anxiety disorders, depressive disorders, and avoidant personality disorder).

Table 1 shows the means, standard deviations, and potential and observed range for scores on all aforementioned measures. Overall, temperament type was associated with a significant effect on the DVs (using Wilks' Lambda,  $F [50, 670] = 3.84, p < .001$ , partial  $\eta^2 = .22$ ). The results of significance testing on pairwise comparisons between variables' means reflect Bonferroni adjustments for multiple comparisons.

Univariate tests indicated that those whose temperament was relatively difficult (i.e., relative to participants who were of a relatively easy temperament or typical temperament) were

significantly more unable to regulate their emotions. Specifically, those with difficult temperament ( $M = 4.34, SD = .69$ ) reported lower levels of emotional awareness than those with easy or typical temperament ( $M_s = 3.84$  and  $3.67$  [ $SD_s = .72$  and  $.62$ ], respectively),  $F [2, 359] = 16.05, p < .001, \text{partial } \eta^2 = .08$ ). Also, those with difficult temperament ( $M = 4.24, SD = .78$ ) reported lower levels of the ability to regulate emotional sensation than those with easy or typical temperament ( $M_s = 3.64$  and  $3.77$  [ $SD_s = .69$  and  $.69$ ], respectively),  $F [2, 359] = 11.48, p < .001, \text{partial } \eta^2 = .06$ ). Those with difficult temperament ( $M = 4.31, SD = .73$ ) also reported lower levels of emotional clarity than those with easy or typical temperament ( $M_s = 3.74$  and  $3.92$  [ $SD_s = .75$  and  $.67$ ], respectively),  $F [2, 359] = 9.60, p < .001, \text{partial } \eta^2 = .05$ ). Moreover, those with difficult temperament ( $M = 4.40, SD = .72$ ) reported lower levels of emotional understanding than those with easy or typical temperament ( $M_s = 3.71$  and  $3.98$  [ $SD_s = .79$  and  $.69$ ], respectively),  $F [2, 359] = 12.77, p < .001, \text{partial } \eta^2 = .07$ ). Those with difficult temperament ( $M = 4.04, SD = .85$ ) reported lower levels of emotional acceptance than those with easy or typical temperament ( $M_s = 3.50$  and  $3.57$  [ $SD_s = .67$  and  $.69$ ], respectively),  $F [2, 359] = 10.21, p < .001, \text{partial } \eta^2 = .05$ ). Those with difficult temperament ( $M = 4.19, SD = .78$ ) also reported lower levels of emotional resilience than those with easy or typical temperament ( $M_s = 3.54$  and  $3.70$  [ $SD_s = .73$  and  $.75$ ], respectively),  $F [2, 359] = 11.18, p < .001, \text{partial } \eta^2 = .06$ ). Moreover, those with difficult temperament ( $M = 4.19, SD = .73$ ) reported lower levels of readiness to confront emotionality than those with easy or typical temperament ( $M_s = 3.59$  and  $3.66$  [ $SD_s = .76$  and  $.74$ ], respectively),  $F [2, 359] = 11.54, p < .001, \text{partial } \eta^2 = .06$ ). Those with difficult temperament ( $M = 4.49, SD = .65$ ) also reported lower levels of ability to be self-supportive during times when emotion regulation was called for than those with easy or typical

temperament ( $M_s = 3.63$  and  $3.92$  [ $SD_s = .84$  and  $.71$ ], respectively),  $F [2, 359] = 19.23, p < .001$ , partial  $\eta^2 = .10$ ). Additionally, those with difficult temperament ( $M = 4.33, SD = .75$ ) reported lower levels of the ability to modify their expression of emotionality than those with easy or typical temperament ( $M_s = 3.46$  and  $3.77$  [ $SD_s = .76$  and  $.69$ ], respectively),  $F [2, 359] = 20.66, p < .001$ , partial  $\eta^2 = .10$ ).

Univariate tests also indicated that there were some significant between-group differences in participants' manner of responding to becoming emotionally upset. Specifically, those with a typical temperament ( $M = 1.90, SD = .78$ ) reported more of a tendency to respond to upset feelings impulsively relative to those with easy temperament ( $M = 2.50, SD = .89$ ). Moreover, those with a difficult temperament ( $M = 1.61, SD = .73$ ) reported a significantly higher tendency to respond to becoming upset in an impulsive manner relative to those with an easy temperament ( $F [2, 359] = 18.08, p < .001$ , partial  $\eta^2 = .09$ ). Participants with an easy temperament ( $M = 2.62, SD = .99$ ) reported significantly lower levels of difficulty accepting the experience of aversive emotions than those with typical or difficult temperament ( $M_s = 2.13$  and  $1.76$  [ $SD_s = .83$  and  $.95$ ], respectively),  $F [2, 359] = 11.20, p < .001$ , partial  $\eta^2 = .06$ ). Moreover, participants with an easy temperament ( $M = 2.61, SD = .85$ ) reported significantly lower levels of difficulty implementing strategies to adapt to the experience of aversive emotions than those with typical or difficult temperament ( $M_s = 2.06$  and  $1.62$  [ $SD_s = .83$  and  $.76$ ], respectively),  $F [2, 359] = 18.41, p < .001$ , partial  $\eta^2 = .09$ ).

There were fewer significant between-group differences on the Ways of Coping Scales but there were still several that did reach a significant level. Specifically, participants with a difficult temperament ( $M = 1.82, SD = .58$ ) were much more likely to agree that they had used

problem-focused coping with a recent stressor relative to those who were classified as having a typical temperament ( $M = 1.51$ ,  $SD = .59$ ),  $F [2, 359] = 6.13$ ,  $p < .01$ , partial  $\eta^2 = .03$ ).

Participants with an easy temperament ( $M = 1.35$ ,  $SD = .64$ ) were much more likely to agree that they had engaged in negative thinking/self-blame as a means to cope with the occurrence of a recent stressor than those who were classified as having a typical temperament ( $M = 1.10$ ,  $SD = .63$ ),  $F [2, 359] = 3.92$ ,  $p < .05$ , partial  $\eta^2 = .02$ ). Moreover, participants with a difficult temperament ( $M = 1.94$ ,  $SD = .73$ ) were significantly more likely to report having used positive reframing as a way to cope with the occurrence of a recent stressor relative to those who were classified as having an easy or typical temperament ( $M_s = 1.52$  and  $1.45$  [ $SD_s = .90$  and  $.77$ ], respectively),  $F [2, 359] = 8.37$ ,  $p < .001$ , partial  $\eta^2 = .04$ ).

Significant between-group differences existed on measures of different aspects of distress tolerance. Participants with an easy temperament ( $M = 2.90$ ,  $SD = .33$ ) were significantly less likely to report a high level of intolerance for ambiguous situations than those who were classified as having a typical temperament ( $M = 3.19$ ,  $SD = .38$ ). Participants with a difficult temperament ( $M = 3.66$ ,  $SD = .52$ ) reported a significantly higher level of intolerance for ambiguous situations than those who were classified as having an easy or typical temperament ( $F [2, 359] = 54.03$ ,  $p < .001$ , partial  $\eta^2 = .23$ ). Participants with an easy temperament ( $M = 2.90$ ,  $SD = .52$ ) reported a significantly lower level of intolerance for uncertainty than those who were classified as having a typical temperament ( $M = 2.45$ ,  $SD = .63$ ). Conversely, participants with a difficult temperament ( $M = 1.90$ ,  $SD = .65$ ) reported a significantly higher level of intolerance for uncertainty than those who were classified as having an easy or typical temperament ( $F [2, 359] = 33.53$ ,  $p < .001$ , partial  $\eta^2 = .16$ ). Participants with an easy temperament ( $M = 2.25$ ,  $SD =$

.54) reported a significantly lower level of intolerance for frustration than those who were classified as having a typical temperament ( $M = 1.96, SD = .54$ ). Participants with a difficult temperament ( $M = 1.49, SD = .63$ ), however, reported a significantly higher level of intolerance for frustration than those who were classified as having an easy or typical temperament ( $F [2, 359] = 24.99, p < .001, \text{partial } \eta^2 = .12$ ).

A similar pattern of between-group differences to that which was observed for both intolerance for uncertainty and intolerance for frustration was also observed for general distress tolerance. Specifically, participants with an easy temperament ( $M = 2.89, SD = .77$ ) reported a significantly higher level of tolerance for distress than those who were classified as having a typical temperament ( $M = 3.45, SD = .73$ ). Conversely, participants with a difficult temperament ( $M = 3.97, SD = .70$ ) reported a significantly lower level of tolerance for distress relative to those who were classified as having an easy or typical temperament ( $F [2, 359] = 28.53, p < .001, \text{partial } \eta^2 = .14$ ).

Significant between-group differences also existed between those of different temperaments on measures of symptoms of DSM-IV-TR disorders. Participants with an easy temperament ( $M = 57.65, SD = 7.17$ ) reported a significantly lower level of depressive symptoms than those who were classified as having a typical temperament ( $M = 54.65, SD = 5.86$ ).

Participants with a difficult temperament ( $M = 52.36, SD = 3.91$ ), however, reported a significantly higher level of depressive symptoms than those who were classified as having an easy or typical temperament ( $F [2, 359] = 10.81, p < .001, \text{partial } \eta^2 = .06$ ). With respect to symptoms of anxiety, the only significant between-group difference existed between those of easy and difficult temperament, with the former experiencing a significantly lower level of

anxiety-related symptoms than the latter ( $M_s = 57.30$  and  $53.18$  [ $SD_s = 6.54$  and  $4.31$ ], respectively),  $F [2, 359] = 5.91, p < .05$ , partial  $\eta^2 = .03$ . Last, participants with an easy temperament ( $M = 58.72, SD = 7.74$ ) reported a significantly lower level of symptoms of avoidant personality disorder than those who were classified as having a typical temperament ( $M = 54.78, SD = 6.23$ ). Participants with a difficult temperament ( $M = 52.66, SD = 3.68$ ), however, reported a significantly higher level of symptoms of avoidant personality disorder than those who were classified as having an easy or typical temperament ( $F [2, 359] = 13.39, p < .001$ , partial  $\eta^2 = .07$ ).

## CHAPTER NINE: DISCUSSION

This study had two overall aims: 1) to use statistical analyses to examine whether/how emotion regulation, emotion dysregulation, coping behaviors, and distress tolerance should be distinguished as unique predictors of psychological symptoms and 2) to create and test a model that predicted psychological symptoms based on the strength of problematic temperament, explore how emotion regulation and distress tolerance interact within the context of the relationship between temperament and psychological symptoms, and explore whether considering/accounting for the presence of coping behaviors would help to explain the relationship between having a difficult temperament and going on to develop psychological symptoms. To build on addressing the second overall aim of the study, which was to garner a better understanding of how or if differences in temperament could be expected to be associated with changes in self-regulatory abilities and associated psychological symptoms, a mean-based comparison between those of different temperamental types also was conducted.

With respect to the first aim of the study, which pertains to testing the construct validity of the variables that were included in the proposed model, the results of EFA analyses yielded several important findings that answered our initial research questions and guided subsequent analyses for this study. For example, results of the EFA analyses that included all facets of emotion regulation and emotion dysregulation represented two distinct, albeit related, constructs. This finding has a few important implications. First, several researchers noted that the interchangeable use of different measures of emotion regulation and emotion dysregulation may be problematic, as the integrity of the inferences and conclusions of any collective body of research depends on measurement practices that ensure validity and generalizability. Thus far,

only one other study deliberately distinguished between these two variables (Salsman & Linehan, 2012).

The distinction between emotion regulation and emotion dysregulation seemed important given the differences in the presence and strength of relationships between variables that were used to inform the treatment and conceptualization of serious psychological problems, particularly in young adults and adolescents (Miller, Rathus, & Linehan, 2007; Rathus & Miller, 2002; Salsman & Linehan, 2012). The distinction may be of particular importance for these groups because there was a recent burgeoning of interest in formulating and using treatments that target difficulties with emotion regulation or that use principles rooted in theories regarding the development of normative emotion regulation abilities. It may be that, if emotion regulation and emotion dysregulation are truly different, treatment outcomes or approaches may need to be measured and tailored accordingly, particularly for young adults and adolescents who are making their transition to adulthood.

Another implication of studying the factor structure of emotion regulation has to do with the difference between the two-factor model that was retained for this study and the previously proposed ACE model, which was discussed in the literature review of this paper. This finding suggested that the composite of variables comprising emotion regulation may operate differently than was proposed. Specifically, the model in the current study suggested that all nine facets of emotion regulation adequately loaded onto a single factor, whereas those who developed the ESRQ found that their results supported the formulation of a different model (i.e., the ACE model; Berking et al., 2010; Berking, Poppe, Luhmann, Wupperman, Jaggi, & Seifritz, 2012). The current model did not include sensation as an indicator and separated modification as a



mediator for the remaining seven variables in the prediction of psychological symptoms. It also may be that the differences in ethnicity across samples accounted for this difference (their sample was comprised of German-speaking college students, whereas the sample in the current study was comprised of English-speaking college students). It also may be that examining emotion regulation alongside emotion dysregulation accounted for the difference.

Moreover, while it was possible that emotion regulation was a construct that was truly distinct from emotion dysregulation, it may be possible that the use of negative wording in the DERS but not on the ESRQ may account for the difference between the two constructs. Specifically, almost all items that comprise the DERS scale were preceded by a clause that was worded to draw participants' attention to a negative or aversive condition (i.e., when I am upset...). Several studies explored the way in which negative and positive wording accounts for changes in participants' manner of appraising situations or their own thoughts and feelings (i.e., Chafouleas, Jaffery, Riley-Tillman, Christ, & Sen, 2013; Garg, 1996; Schriesheim & Hill, 1981; Standage, Ashwin, & Fox, 2010), with results suggesting that the use of negative wording may effectively introduce a valence that then affects the way in which participants respond. We did not control for the possibility that the manner in which the questionnaires themselves were worded could account for the differences in the latent factor structure. In future studies, it would be important to take steps to explore the possibility that item presentation could be introducing a threat to validity. One possible way of proceeding would be to present the items that comprise the DERS as they are written and then present the same items without the clause "when I am upset" preceding each item. Then, response patterns could be compared on the basis of whether the negatively worded clause was included. Another possible way of exploring whether valence

may be a factor would be to present the items of the ESRQ as they are written and then also present the items with the same negatively worded clause that is used in the DERS. In any case, further efforts to replicate these findings should be undertaken so that generalizations can be made with context in mind. Nonetheless, for the purposes of this study, emotion regulation and emotion dysregulation were conceptualized as two significantly correlated but distinct variables.

Contrary to our expectations regarding the structure of distress tolerance, there was no evidence that individuals' perceived distress tolerance, as measured by participants' scores on the Distress Tolerance Scale's subscales, significantly differed from their actual distress tolerance, as measured by the participants' scores on the Frustration Tolerance Scale, Intolerance for Uncertainty Scale, Multiple Stimulus Types Ambiguity Tolerance Test, and Distress Intolerance Test. Instead, results suggested that Distress Tolerance was conceptualized best as a singular, albeit multifaceted, construct. Such an interpretation was consistent with the view of researchers who conducted exhaustive reviews of work pertaining to the measurement of distress tolerance in the empirical literature and proposed a model of distress tolerance that was based on their review (Leyro, Zvolensky, & Bernstein, 2010). The only difference between the structure of the construct labeled Distress Tolerance in this study and the structure of the construct that was put forth by Zvolensky, Vujanovic et al. (2010) was the exclusion of a measure of intolerance for physical distress in the current model. Although tolerance for physical discomfort often was used as an indicator for general distress tolerance, those who conducted the aforementioned review of literature pertaining to measurement of distress tolerance warned that effect sizes associated with intolerance for physical distress as a predictor of other psychological variables was observed to be small and that it also was likely that the strength and stability of the relationship between

physical distress tolerance and psychological problems depended on the outcome variable (Leyro, Zvolensky, & Bernstein, 2010; Zvolensky, Vujanovic et al., 2010).

Given these results, it appeared that participants' appraisal of their own tolerance for distress imposed by mental states was unique from distress posed by physical states. It may be that using a measure that relies on participants' cognitive appraisal of their tolerance for physical pain was not a valid and/or reliable indicator of actual tolerance for physical discomfort and that a research design that utilized a stimulus that induced a controlled amount of physical pain, which then was terminated by a given participant when they could or would not tolerate further pain, would be preferable. In fact, several studies pertaining to the measurement of distress tolerance used similar designs to study the way in which distress tolerance was related to a myriad of psychological constructs (i.e., Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; Leyro, Zvolensky, & Bernstein, 2010; Masedo & Esteve, 2007; McHugh et al., 2011). Future studies of distress tolerance could be designed with these studies and the results of the current study in mind.

Because the results from this study allowed for a higher level of specificity when it came to how latent constructs would be represented within the model and informed how certain constructs would be best represented (i.e., as one latent construct or two significantly correlated but independent constructs), simple visual examination indicated that the a priori model (Figure 1) was different both from the final measurement model and structural model. That said, the final model was similar enough to the a priori model to allow for original research questions to be answered.

Examination of the regression weights corresponding to the paths between latent variables in the model indicated that having a difficult temperament was not related directly to having psychological symptoms. This finding was consistent with past research suggesting that, although the presence of temperament traits can be accurately thought of as reactive tendencies in response to environmental change, the translation of these tendencies into cognitive and behavioral features was not definitive. Although the current study was not longitudinal, results of a comparative study of older adolescents versus younger adolescents showed that the strength of the relationship between having a difficult temperament and expressing symptoms of psychopathology weakened with age (Trospen & May, 2011). Thus, it may be that this trend endured into early adulthood.

Interestingly, emotion regulation abilities were not related significantly to psychological symptoms either. This finding may imply that having a high level of ability to manage emotions did not necessarily protect individuals against the experience of psychological symptoms. This hypothesis would have interesting implications for clinical practice and for studies exploring protective factors in those with or without psychological disorders. Interestingly, although emotion regulation was not related significantly to psychological symptoms, emotion dysregulation was related significantly to the degree of psychological symptoms that the individuals in this study were experiencing. Because emotion dysregulation also was related to emotion regulation, it may not be a matter of having a wide breadth of emotion regulation abilities that matters when it comes to developing psychological symptoms. Instead, the extent to which individuals' emotional responses do not become dysregulated during times of emotional

duress may be more important to preventing psychological symptoms from getting out of control (Aldao & Nolen-Hoeksema, 2012; Berking, Ebert, Cuijpers, & Hoffman, 2013)

Perhaps among the most compelling results yielded by these analyses were those pertaining to coping behaviors and distress tolerance. With the exception of emotion regulation, coping behavior was not related to any other latent variable. One possible interpretation for this finding may be that the coping behaviors latent variable was unique from the other variables captured in this model. One thing that stood out was that this variable measured concrete responses to actual stressors, whereas other measures in this study involved a more abstract form of self-appraisal regarding reactions to psychological states (e.g., “what did you do?” versus “could you withstand?” or “how well do you think you tolerate...?”). It also may be that participants’ manner of coping with their most recent set of stressors was not representative of their coping behaviors in general. Further, in accordance with the conjecture put forth by those who studied the application of emotion regulation abilities within a coping framework, having one type of regulatory style or manner of coping may not be important. Instead, the extent to which coping behaviors were adaptive or a good fit for environmental demands may be more important in making a difference for individuals’ experience of psychological symptoms (Aldao & Nolen-Hoeksema, 2012). Finally, as several variations of Cognitive-Behavioral Therapy (e.g., Hayes et al., 1999; Miller, Rathus, & Linehan, 2007; Linehan, 1993) that foster patients’ abilities to use and develop coping behaviors do so with the purpose of increasing distress tolerance, the finding that distress tolerance was not related significantly to coping behaviors may be of importance. Although it should be acknowledged that coping behaviors were distinct, it may be

worthwhile to investigate the extent to which changes in distress tolerance may be associated with changes in coping behaviors.

Regarding differences based on temperament type, there were three main points that could be made on the basis of the MANOVA post hoc analyses that were conducted. The first was that the subset of participants who were of relatively difficult temperament were more apt to experience difficulty regulating their emotions, to experience higher levels of emotion dysregulation, to be less tolerant of various facets of distress tolerance, and to experience higher degrees of psychological symptoms, particularly in comparison to those with easy temperament. The second was that ways of coping with a recent stressor were among the least robust dependent variables with respect to their association with significant between group differences. The third point was that, in a few instances, there were marked differences in functioning between those of easy and typical temperament.

These three points are particularly notable because they appeared to run contrary to trends reported in extant literature pertaining to the relationship between temperament and the presence of psychological symptoms in emerging adult cohorts. It may be that emerging adulthood is a unique developmental stage with biopsychosocial circumstances that make expressing temperament more likely or relevant to environmental challenges (i.e., moving away from the family of origin, beginning higher education or advanced employment opportunities, considering or experiencing changes in marital or parenting status). Further study would need to be conducted to test this conjecture.

Regarding limitations, there were a few limitations that warrant further discussion. First, in the literature review and introduction of the current study, it was mentioned that using self-

report rather than relying on the opinions and ratings of secondary observers was a relative strength of our methodology. Nonetheless, it also was acknowledged that the use of self-report measures came with certain limitations. It may be that participants had an incorrect or biased viewpoint or that participants' responses were influenced by common sources of secondary gain, such as desiring to portray themselves in a positive or negative light. Unfortunately, in the current study, there was no way to corroborate the self-reports that were collected with a secondary observer and/or with validity measures that could allow us to detect and manage threats associated with self-report. Additionally, several constructs that were utilized required participants to report on general trends in their attitude and behavior, as the aim of the current study was to measure long-standing trends. Nonetheless, the use of one-time rating scales made it impossible to say whether participants' current perceptions of their tendencies were indeed reflective of long-standing traits.

Another limitation pertains to the identification of participants whose responses may not be a valid indication of their true attitudes or symptoms. Although we did use post-priori methods to disclude participants whose responses were incomplete or extreme to the extent that they would be considered outliers, research suggested that additional methods were potentially more efficacious in identifying participants whose overall pattern of response lacked validity. It should be acknowledged that the battery of measurement instruments was somewhat long. In order for participants to produce valid responses, they had to be willing and able to put forth sustained effort and attention for a considerable amount of time. We did not use a formal measure of effort or attention in our battery and thus were limited to identifying participants whose effort or attention lapsed by observing the number of missing responses. In future studies,

other means should be employed to ensure that participants' responses will be valid representations of their attitudes and behavior. Regarding specific methodology for identifying invalid response sets, there were studies indicating that deviation from typical or basal completion times may indicate malingering or other deficits in attention that would threaten the validity of a complete response set (Davis, King, Klebe, Bajszar, Bloodworth, & Wallick, 1997; Neudecker & Skeel, 2009; Ruffolo, Guilmette, & Willis, 2000). As such, it would likely be useful to consider employing a time-based criterion to further ensure that only valid response sets were included in the final data set. Another method for identifying invalid responses would be to integrate items from a short measure (i.e., Jackson, 1984) that includes statements that are endorsed infrequently, with a positive endorsement on one or more statements indicating potential carelessness or inattention in responding. Several accepted measures of psychological symptoms, such as the MMPI (Buchanan, 1994) and PAI (Morey, 2007), integrate such scales. Infrequency measures also are integrated commonly into research studies that are similar in terms of research design to the current study

Further, although there was reason for doing so other than for the sake of convenience, this sample was comprised entirely of college students. The use of college students as a participant pool for empirical research was a common criticism of social science research. Certainly, the findings of the current study may not be generalizable to the population as a whole or even to young adults in general, but being generalizable to all populations was not necessarily the aim of this study. College students are a particularly special population of young adults in their own right, as they are posed with unique stressors during a sensitive developmental period



(Asberg et al., 2008; McKinney et al., 2008). As such, it was hoped that this limitation was considered in the context of the current study's specific aims.

One final limitation pertained to the fact that, although it was expected that temperament would be stable across time, this study was not longitudinal. As such, it may be that the strength and direction of the relationships between variables would change over time or at critical developmental time periods. If such changes did occur over time, specific relationships within the tested model or the extent to which this model was representative of the process by which temperament translates into psychological symptoms also may change depending on when or under what circumstances that measurements were taken.

Given these limitations, using a longitudinal design to examine whether the inferences that were made about the structure and function of the variables within the model or even whether the model itself was useful in predicting psychological symptoms would be a very interesting line of future research. It also may be interesting to examine whether these findings differ across groups that are distinguished by their age or developmental level. Additional lines of research also could include examining whether these findings help health service providers and other practitioners to better understand and help individuals whose psychological symptoms were co-occurring in the context of low levels of emotion regulation, the experience of dysregulation during periods of emotional duress, intense reactivity to emotions that were experienced during periods of upset, difficulty or unwillingness to tolerate the experience of distress, and difficulty accessing coping skills. Patients who carry a diagnosis of Borderline Personality Disorder would be an example of one such group, particularly since researchers who developed treatments for these patients have done so under the theoretical assumption that

patients' temperament plays an instrumental role in the development and maintenance of psychological symptoms (Linehan, 1993).

It was hoped that, by accurately measuring and contextualizing the relationships among correlates of psychological symptoms, the current study could be part of an effort to better understand why and how psychological symptoms develop. Having such an understanding would allow researchers and health service providers to better identify and assist those with psychological symptoms. Moreover, if further research were to be conducted with young adults as a target population, it may be possible to intervene and interrupt the translation of temperament toward using maladaptive means of self-regulation before these tendencies become fully developed psychological disorders with all of their associated impairment and hardship.

**APPENDIX A: IRB APPROVAL LETTER**



University of Central Florida Institutional Review Board  
 Office of Research & Commercialization  
 12201 Research Parkway, Suite 501  
 Orlando, Florida 32826-3246  
 Telephone: 407-823-2901 or 407-882-2276  
[www.research.ucf.edu/compliance/irb.html](http://www.research.ucf.edu/compliance/irb.html)

**Approval of Exempt Human Research**

**From:** UCF Institutional Review Board #1  
 FWA00000351, IRB00001138

**To:** Catherine Pearte

**Date:** February 26, 2013

Dear Researcher:

On 02/26/2013, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination  
 Project Title: Temperament, Emotion Regulation, and Distress Tolerance as Correlates of Psychological Symptoms in Emerging Adults  
 Investigator: Catherine Pearte  
 IRB Number: SBE-13-09069  
 Funding Agency:  
 Grant Title:  
 Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Patria Davis on 02/26/2013 12:50:54 PM EST

IRB Coordinator

## **APPENDIX B: DEFENSE ANNOUNCEMENT**

**Announcing the Final Examination of Catherine Pearte, M.S.  
for the Doctor of Philosophy Degree in  
Psychology - Clinical**

Date: 12/04/2014

Time: 3:00 pm

Location: Psychology Building Room 301H

Dissertation title: TEMPERAMENT, EMOTION REGULATION, AND DISTRESS TOLERANCE AS RELATED CORRELATES OF PSYCHOLOGICAL SYMPTOMS

Explanation:

*This study investigated how emotion regulation, distress tolerance, coping style, and emotion dysregulation can be differentiated as separate but related constructs, which interact to inform how or whether temperamental characteristics translate into symptoms of clinical disorders. In order to collect data for this study, a sample of emerging adults was asked to complete self-report measures of aforementioned constructs on an anonymous basis. Data analyses involved two steps, with the first step entailing the use of exploratory and confirmatory factor analyses to establish construct validity of each latent variable of interest and the second step involving the application of structural equation modeling to construct and test both a measurement and structural model. Results demonstrated that, when temperamental style is provided as a context, emotion regulation, emotion dysregulation, coping styles, and distress tolerance are albeit related distinct constructs, which differ in terms of the degree of their importance as predictors of clinical symptoms. Recommendations were made for modification and future applications of the instruments used in the study and for continued research into the role that temperament may play in the process of development or expression of psychological symptoms in early adulthood.*

**Outline of Studies**

Major: Psychology: – Clinical

Educational Career: – B.A. Hollins University, 2004

M.S. University of Central Florida, 2009

**Committee in Charge**

Committee Chair: Kimberly Renk, Ph.D.

Department Committee Member: Valerie Sims, Ph.D.

Department Committee Member: Dr. Jeffrey Cassisi, Ph.D.

Outside Committee Member: Dr. Anne Culp, Ph.D.

Other Committee Member: N/A

Approved for distribution by Kimberly Renk, Ph.D., Committee Chair, on 11/29/2014

**The public is welcome to attend.**

## **APPENDIX C: BATTERY OF MEASURES**

## Dimensions of Temperament (DOTS-R)

Directions: On the following pages are some statements about how people like you may behave. Some of the statements may be true of your own behavior and others may not apply to you. For each statement we would like you to indicate if the statement is usually true of you, is more true than false of you, is more false than true of you, or is usually false of you. There are no "right" or "wrong" answers because all people behave in different ways. All you have to do is answer what is true for you.

A = usually FALSE

B = more FALSE than true

C = more TRUE than false

D = usually TRUE

1. \_\_\_ It takes me a long time to get used to a new thing in the home.
2. \_\_\_ I can't stay still for long.
3. \_\_\_ I laugh and smile at a lot of things.
4. \_\_\_ I wake up at different times.
5. \_\_\_ Once I am involved in a task, nothing can distract me from it.
6. \_\_\_ I persist at a task until it's finished.
7. \_\_\_ I move around a lot.
8. \_\_\_ I can make myself at home anywhere.
9. \_\_\_ I can always be distracted by something else, no matter what I may be doing.
10. \_\_\_ I stay with an activity for a long time.
11. \_\_\_ If I have to stay in one place for a long time, I get very restless.
12. \_\_\_ I usually move towards new objects shown to me.
13. \_\_\_ It takes me a long time to adjust to new schedules.
14. \_\_\_ I do not laugh or smile at many things.
15. \_\_\_ If I am doing one thing, something else occurring won't get me to stop.
16. \_\_\_ I eat about the same amount for dinner whether I am home, visiting someone, or traveling.



17. \_\_\_ My first reaction is to reject something new or unfamiliar to me.
18. \_\_\_ Changes in plans make me restless.
19. \_\_\_ I often stay still for long periods of time.
20. \_\_\_ Things going on around me can not take me away from what I am doing.
21. \_\_\_ I take a nap, rest, or break at the same time every day.
22. \_\_\_ Once I take something up, I stay with it.
23. \_\_\_ Even when I am supposed to be still, I get very fidgety after a few minutes.
24. \_\_\_ I am hard to distract.
25. \_\_\_ I usually get the same amount of sleep each night.
26. \_\_\_ On meeting a new person I tend to move towards him or her.
27. \_\_\_ I get hungry about the same time each day.
28. \_\_\_ I smile often.
29. \_\_\_ I never seem to stop moving.
30. \_\_\_ It takes me no time at all to get used to new people.
31. \_\_\_ I usually eat the same amount each day.
32. \_\_\_ I move a great deal in my sleep.
33. \_\_\_ I seem to get sleepy just about the same time every night.
34. \_\_\_ I do not find that I laugh often.
35. \_\_\_ I move towards new situations.
36. \_\_\_ When I am away from home, I still wake up at the same time each morning.
37. \_\_\_ I eat about the same amount at breakfast from day to day.
38. \_\_\_ I move a lot in bed.
39. \_\_\_ I feel full of pep and energy at the same time each day.

40. \_\_\_ I have bowel movements at about the same time each day.
41. \_\_\_ No matter when I go to sleep, I wake up at the same time the next morning.
42. \_\_\_ In the morning, I am still in the same place as I was when I fell asleep.
43. \_\_\_ I eat about the same amount at supper from day to day.
44. \_\_\_ When things are out of place, it takes me a long time to get used to it.
45. \_\_\_ I wake up at the same time on weekends and holidays as on other days of the week.
46. \_\_\_ I don't move around much at all in my sleep.
47. \_\_\_ My appetite seems to stay the same day after day.
48. \_\_\_ My mood is generally cheerful.
49. \_\_\_ I resist changes in routine.
50. \_\_\_ I laugh several times a day.
51. \_\_\_ My first response to anything new is to move my head toward it.
52. \_\_\_ Generally, I am happy.
53. \_\_\_ The number of times I have a bowel movement on any day varies from day to day.
54. \_\_\_ I never seem to be in the same place for long.

# Emotion Regulation Skills Questionnaire (ESRQ)

Directions: Below, are some statements about a variety of emotions you may have experienced in the last week and about how you dealt with these emotions. Please fill in the circle for the answer that fits the best for you. Don't spend a lot of time on each question; the first answer that comes to your mind is probably the best.

## 1. Emotions & Mood: In the last week I felt ...

	not at all	rarely	some-times	often	almost always		not at all	rarely	some-times	often	almost always		
1	courageous:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	26	sad:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
2	worthless:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	27	disappointed:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
3	thankful:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	28	confident:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
4	active:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	29	cozy:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
5	interested:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	30	alarmed:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
6	excited:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	31	depressed:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
7	strong:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	32	unhappy:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
8	inspired:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	33	tense:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
9	proud:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	34	stressed:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
10	enthusiastic:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	35	hopeless:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
11	alert:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	36	optimistic:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
12	determined:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	37	anxious:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
13	attentive:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	38	disgusted:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
14	distressed:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	39	humiliated:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
15	upset:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	40	valuable:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
16	guilty:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	41	balanced:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
17	scared:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	42	content:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
18	hostile:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	43	satisfied:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
19	irritable:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	44	jealous:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
20	ashamed:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	45	love:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
21	nervous:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	46	peaceful:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
22	jittery:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	47	calm:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
23	afraid:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	48	envious:	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

24 safe: 0 1 2 3 4 49 happy: 0 1 2 3 4  
 25 embarrassed: 0 1 2 3 4 50 relaxed: 0 1 2 3 4

## 2. Dealing with emotions: In the last week ...

	not at all	rarely	some-times	often	almost always
1.) ... I was able to consciously pay attention to my feelings.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
2.) ... I could consciously bring about positive feelings.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
3.) ... I understood my emotional reactions.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
4.) ... I could endure my negative feelings.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
5.) ... I was able to accept my negative feelings.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
6.) ... I could have labelled my feelings.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
7.) ... I had a clear physical perception of my feelings.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
8.) I did what I wanted to do, even if I had to face negative feelings on the way.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
9.) ... I tried to reassure myself during distressing situations.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
10.) ... I was able to influence my negative feelings.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
11.) ... I knew what my feelings meant.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
12.) ... I could focus on my negative emotions if necessary.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
13.) ... I knew what emotions I was feeling in the moment.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
14.) I consciously noticed when my body reacted towards emotionally charged situations in a particular way.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
15.) ... I tried to cheer myself up in emotionally distressing situations.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
16.) ... I did what I intended to do despite my negative feelings.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
17.) ... I was OK with my feelings, even if they were negative.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
18.) I was certain that I would be able to tolerate even intense negative feelings.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
19.) ... I was able to experience my feelings consciously.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
20.) ... I was aware of why I felt the way I felt.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
21.) ... I knew that I was able to influence my feelings.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
22.) I pursued goals that were important to me, even if I thought that doing so would trigger or intensify negative feelings.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
23.) I was able to experience my negative feelings without immediately trying to fight them off.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
24.) ... my physical sensations were a good indication of how I was feeling.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
25.) ... I was clear about what emotions I was experiencing.	<input type="radio"/> 0	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

- 26.) ... I could tolerate my negative feelings.  0  1  2  3  4
- 27.) ... I supported myself in emotionally distressing situations.  0  1  2  3  4

### Difficulty with Emotion Regulation Scale (DERS)

Directions: Read each statement and circle the number of the answer choice that applies to you most often.

Almost Never	Sometimes	About Half the Time	Most of the Time	Almost Always
1	2	3	4	5

1. I am clear about my feelings.
2. I pay attention to how I feel.
3. I experience my emotions as overwhelming and out of control.
4. I have no idea how I am feeling.
5. I have difficulty making sense out of my feelings
6. I am attentive to my feelings.
7. I know exactly how I am feeling.
8. I care about what I am feeling.
9. I am confused about how I feel
10. When I'm upset, I acknowledge my emotions.
11. When I'm upset, I feel ashamed with myself for feeling that way.
12. When I'm upset, I become embarrassed for feeling that way.
13. When I'm upset, I have difficulty getting work done.
14. When I'm upset, I become out of control.
15. When I'm upset, I believe that I will remain that way for a long time.
16. When I'm upset, I believe that I'll end up feeling very depressed.
17. When I'm upset, I believe that my feelings are valid and important.
18. When I'm upset, I have difficulty focusing on other things.
19. When I'm upset, I feel out of control.
20. When I'm upset, I can still get things done.
21. When I'm upset, I feel ashamed with myself for feeling that way.
22. When I'm upset, I know that I can find a way to eventually feel better.
23. When I'm upset, I feel like I am weak.
24. When I'm upset, I feel like I can remain in control of my behaviors.
25. When I'm upset, I feel guilty for feeling that way.
26. When I'm upset, I have difficulty concentrating.
27. When I'm upset, I have difficulty controlling my behaviors.
28. When I'm upset, I believe that there is nothing I can do to make myself feel better.
29. When I'm upset, I become irritated with myself for feeling that way.
30. When I'm upset, I start to feel very bad about myself.
31. When I'm upset, I believe that wallowing in it is all I can do.

- 32. When I'm upset, I lose control over my behaviors.
- 33. When I'm upset, I have difficulty thing about anything else.
- 34. When I'm upset, I take time to figure out what I'm really feeling.
- 35. When I'm upset, it takes me a long time to feel better.
- 36. When I'm upset, my emotions feel overwhelming.

**WAYS OF COPING- Revised (WOC-R)**

Directions: Please read each item below and indicate, by using the following rating scale, to what extent you used it in the situation you have just described.

Not Used	Used Somewhat	Used Quite a Bit	Used a Great Deal
0	1	2	3

- \_\_\_ 1. Just concentrated on what I had to do next – the next step.
- \_\_\_ 2. I tried to analyze the problem in order to understand it better.
- \_\_\_ 3. Turned to work or substitute activity to take my mind off things.
- \_\_\_ 4. I felt that time would make a difference – the only thing to do was to wait.
- \_\_\_ 5. Bargained or compromised to get something positive from the situation.
- \_\_\_ 6. I did something which I didn't think would work, but at least I was doing something.
- \_\_\_ 7. Tried to get the person responsible to change his or her mind.
- \_\_\_ 8. Talked to someone to find out more about the situation.
- \_\_\_ 9. Criticized or lectured myself.
- \_\_\_ 10. Tried not to burn my bridges, but leave things open somewhat.
- \_\_\_ 11. Hoped a miracle would happen.
- \_\_\_ 12. Went along with fate; sometimes I just have bad luck.
- \_\_\_ 13. Went on as if nothing had happened.
- \_\_\_ 14. I tried to keep my feelings to myself.
- \_\_\_ 15. Looked for the silver lining, so to speak; tried to look on the bright side of things
- \_\_\_ 16. Slept more than usual.
- \_\_\_ 17. I expressed anger to the person(s) who caused the problem.
- \_\_\_ 18. Accepted sympathy and understanding from someone.
- \_\_\_ 19. I told myself things that helped me to feel better.
- \_\_\_ 20. I was inspired to do something creative.
- \_\_\_ 21. Tried to forget the whole thing.
- \_\_\_ 22. I got professional help.
- \_\_\_ 23. Changed or grew as a person in a good way.
- \_\_\_ 24. I waited to see what would happen before doing anything.
- \_\_\_ 25. I apologized or did something to make up.
- \_\_\_ 26. I made a plan of action and followed it.
- \_\_\_ 27. I accepted the next best thing to what I wanted.
- \_\_\_ 28. I let my feelings out somehow.

- \_\_\_ 29. Realized I brought the problem on myself.
- \_\_\_ 30. I came out of the experience better than when I went in.
- \_\_\_ 31. Talked to someone who could do something concrete about the problem.
- \_\_\_ 32. Got away from it for a while; tried to rest or take a vacation.
- \_\_\_ 33. Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc.
- \_\_\_ 34. Took a big chance or did something very risky.
- \_\_\_ 35. I tried not to act too hastily or follow my first hunch.
- \_\_\_ 36. Found new faith.
- \_\_\_ 37. Maintained my pride and kept a stiff upper lip.
- \_\_\_ 38. Rediscovered what is important in life.
- \_\_\_ 39. Changed something so things would turn out all right.
- \_\_\_ 40. Avoided being with people in general.
- \_\_\_ 41. Didn't let it get to me; refused to think too much about it.
- \_\_\_ 42. I asked a relative or friend I respected for advice.
- \_\_\_ 43. Kept others from knowing how bad things were.
- \_\_\_ 44. Made light of the situation; refused to get too serious about it.
- \_\_\_ 45. Talked to someone about how I was feeling.
- \_\_\_ 46. Stood my ground and fought for what I wanted.
- \_\_\_ 47. Took it out on other people.
- \_\_\_ 48. Drew on my past experiences; I was in a similar situation before.
- \_\_\_ 49. I knew what had to be done, so I doubled my efforts to make things work.
- \_\_\_ 50. Refused to believe that it had happened.
- \_\_\_ 51. I made a promise to myself that things would be different next time.
- \_\_\_ 52. Came up with a couple of different solutions to the problem.
- \_\_\_ 53. Accepted it, since nothing could be done.
- \_\_\_ 54. I tried to keep my feelings from interfering with other things too much.
- \_\_\_ 55. Wished that I could change what had happened or how I felt.
- \_\_\_ 56. I changed something about myself.
- \_\_\_ 57. I daydreamed or imagined a better time or place than the one I was in.
- \_\_\_ 58. Wished that the situation would go away or somehow be over with.
- \_\_\_ 59. Had fantasies or wishes about how things might turn out.
- \_\_\_ 60. I prayed.
- \_\_\_ 61. I prepared myself for the worst.
- \_\_\_ 62. I went over in my mind what I would say or do.
- \_\_\_ 63. I thought about how a person I admire would handle this situation and used that as a model.
- \_\_\_ 64. I tried to see things from the other person's point of view.
- \_\_\_ 65. I reminded myself how much worse things could be.
- \_\_\_ 66. I jogged or exercised.

### **Discomfort Intolerance Scale (DIS)**

Directions: Please indicate the extent to which each statement is true of you

Strongly Agree	Mildly Agree	Equally Agree And Disagree	Mildly Disagree	Strongly Disagree
1	2	3	4	5

1. I can tolerate a great deal of physical discomfort
2. I have a high pain threshold
3. I take extreme measures to avoid feeling physically uncomfortable
4. I'm the kind of person who never takes medication, like aspirin, when I have aches and pains
5. I push my physical limits when I exercise
6. When I begin to feel physically uncomfortable, I quickly take steps to relieve the discomfort
7. I am more sensitive to feeling discomfort compared to most persons

### **Distress Tolerance Scale (DTS)**

Directions: Think of times that you feel distressed or upset. Select the item from the menu that best describes your beliefs about feeling distressed or upset.

Strongly Agree	Mildly Agree	Equally Agree And Disagree	Mildly Disagree	Strongly Disagree
1	2	3	4	5

1. Feeling distressed or upset is unbearable to me.
2. When I feel distressed or upset, all I can think about is how bad I feel.
3. I can't handle feeling distressed or upset.
4. My feelings of distress are so intense that they completely take over.
5. There's nothing worse than feeling distressed or upset
6. I can tolerate being distressed or upset as well as most people.
7. My feelings of distress or being upset are not acceptable.
8. I'll do anything to avoid feeling distressed or upset.
9. Other people seem to be able to tolerate feeling distressed or upset better than I can.
10. Being distressed or upset is always a major ordeal for me.
11. I am ashamed of myself when I feel distressed or upset.
12. My feelings of distress or being upset scare me.
13. I'll do anything to stop feeling distressed or upset.
14. When I feel distressed or upset, I must do something about it immediately.
15. When I feel distressed or upset, I cannot help but concentrate on how bad the distress actually feels.



## Frustration Discomfort Scale (FDS)

Listed below are a number of common thoughts and beliefs that people may have when they are distressed or frustrated. Please read each statement and decide how well this usually describes your own beliefs. Circle the number that best indicates the strength of this belief'

0 Absent	1 Mild	2 Moderate	3 Strong	4 Very Strong
-------------	-----------	---------------	-------------	------------------

1. I need the easiest way around problems; I can't stand making a hard time of it
2. I can't stand having to wait for things I would like *now*
3. I must be free of disturbing feelings as quickly as possible
4. I can't stand being prevented from achieving my full potential
5. I can't stand doing tasks that seem too difficult
6. I can't stand it if other people act against my wishes
7. I can't bear to feel that I am losing my mind
8. I can't bear the frustration of not achieving my goals
9. I can't stand doing tasks when I'm not in the mood
10. I can't bear it if other people stand in the way of what I want
11. I can't bear to have certain thoughts
12. I can't tolerate lowering my standards even when it would be useful to do so
13. I can't stand having to push myself at tasks
14. I can't tolerate being taken for granted
15. I can't stand situations where I might feel upset
16. I can't bear to move on from work I'm not fully satisfied with
17. I can't stand the hassle of having to do things right now
18. I can't stand have to give in to other people's demands
19. I can't bear disturbing feelings
20. I can't stand doing a job if I'm unable to do it well
21. I can't stand doing things that involve a lot of hassle
22. I can't stand have to change when others are at fault
23. I can't get on with my life, or be happy, if things don't change
24. I can't stand felling that I'm not on top of my work
25. I can't stand having to persist at an unpleasant task
26. I can't tolerate criticism especially when I know I'm right
27. I can't stand to lose control
28. I can't tolerate any lapse in my self-discipline
29. I can't tolerate being overlooked
30. I can't bear to have been treated unjustly
31. I can't stand being left in the dark with no explanation
32. I can't stand giving up immediate pleasures for a distant goal
33. I can't tolerate being treated with disrespect
34. I can't bear being deprived now of things I lacked in the past
35. I can't tolerate other people's bad or stupid behavior

## Multiple Stimulus Types Ambiguity Test (MSTAT-I)

Directions: Please indicate the extent to which each statement is true of you

Strongly Agree	Mildly Agree	Equally Agree And Disagree	Mildly Disagree	Strongly Disagree
1	2	3	4	5

1. I don't tolerate ambiguous situations well.
2. I find it difficult to respond when faced with an unexpected event.
3. I don't think new situations are any more threatening than familiar situations.
4. I'm drawn to situations which can be interpreted in more than one way.
5. I would rather avoid solving a problem that must be viewed from several different perspectives.
6. I try to avoid situations which are ambiguous.
7. I am good at managing unpredictable situations.
8. I prefer familiar situations to new ones.
9. Problems which cannot be considered from just one point of view are a little threatening.
10. I avoid situations which are too complicated for me to easily understand.
11. I am tolerant of ambiguous situations.
12. I enjoy tackling problems which are complex enough to be ambiguous.
13. I try to avoid problems which don't seem to have only one "best" solution.
14. I often find myself looking for something new, rather than trying to hold things constant in my life.
15. I generally prefer novelty over familiarity.
16. I dislike ambiguous situations.
17. Some problems are so complex that just trying to understand them is fun.
18. I have little trouble coping with unexpected events.
19. I pursue problem situations which are so complex some people call them "mind boggling."
20. I find it hard to make a choice when the outcome is uncertain.
21. I enjoy an occasional surprise.
22. I prefer a situation in which there is some ambiguity.

## Intolerance of Uncertainty Scale- Short Form (IUS)

Please circle the number that best corresponds to how much you agree with each item.

	Not at all characteristic of me	A little characteristic of me	Somewhat characteristic of me	Very characteristic of me	Entirely characteristic of me
1. Unforeseen events upset me greatly.	1	2	3	4	5
2. It frustrates me not having all the information I need.	1	2	3	4	5
3. Uncertainty keeps me from living a full life.	1	2	3	4	5
4. One should always look ahead so as to avoid surprises.	1	2	3	4	5
5. A small unforeseen event can spoil everything, even with the best of planning.	1	2	3	4	5
6. When it's time to act, uncertainty paralyzes me.	1	2	3	4	5
7. When I am uncertain I can't function very well.	1	2	3	4	5
8. I always want to know what the future has in store for me.	1	2	3	4	5
9. I can't stand being taken by surprise.	1	2	3	4	5
10. The smallest doubt can stop me from acting.	1	2	3	4	5
11. I should be able to organize everything in advance.	1	2	3	4	5
12. I must get away from all uncertain situations.	1	2	3	4	5

## Adult Self-Report for Ages 18-59 (ASR)

Your Name:

Gender:

Age:

Ethnic Group or Race:

Your Birthdate:

Today's Date:

Your usual type of work, even if you are not working now:

Highest level of education:

### I. Friends

A. About how many close friends do you have?

- None
- 1
- 2-3
- 4 or More

B. About how many times a month do you have contact with any of your close friends?  
(Include in-person contacts, phone, letters, e-mail)

- Less than 1
- 1 or 2
- 3 or 4
- 5 or more

C. How well do you get along with your close friends?

- Not as well as I'd like
- Average
- Above Average
- Far Above Average
- 

D. About how many times a month do any friends or family visit you?

- Less than 1
- 1 or 2
- 3 or 4
- 5 or more

## II. Spouse or Partner

- What is your marital status?
- Never been married
- Married, living with spouse
- Married by separated from spouse
- Divorced
- Widowed
- Other, please describe: \_\_\_\_\_

At any time in the past 6 months, did you live with your spouse or partner?

- No (please skip to Section III)
- Yes

Circle 0, 1, or 2 beside items A-H to describe your relationship during the past 6 months:

0= Not True

1= Somewhat True

2= Often True

- 0 1 2 A. I get along well with my spouse or partner
- 0 1 2 B. My spouse or partner and I have trouble sharing responsibilities
- 0 1 2 C. I feel satisfied with my spouse or partner
- 0 1 2 D. My spouse or partner and I enjoy similar activities
- 0 1 2 E. My spouse or partner and I disagree about living arrangements, such as where we live
- 0 1 2 F. I have trouble with my spouse or partner's family
- 0 1 2 G. I like my spouse or partner's friends
- 0 1 2 H. My spouse or partner's behavior annoys me

## III. Family

Compared with others, how well do you:

A. Get along with your brothers?

- I have no brothers
- Worse than average
- Variable or average
- Better than average
- No contact

B. Get along with your sisters?

- I have no sisters
- Worse than average
- Variable or average

- Better than average
- No contact

C. Get along with your mother?

- My mother is deceased
- Worse than average
- Variable or average
- Better than average
- No contact

D. Get along with your father?

- My father is deceased
- Worse than average
- Variable or average
- Better than average
- No contact

E. Get along with your biological or adopted children?

- I have no children

37. Oldest child

- Worse than average
- Variable or average
- Better than average
- Not applicable

38. 2<sup>nd</sup> oldest child

- Worse than average
- Variable or average
- Better than average
- Not applicable

39. 3<sup>rd</sup> oldest child

- Worse than average
- Variable or average
- Better than average
- Not applicable

40. Other children

- Worse than average
- Variable or average
- Better than average
- Not applicable

E. Get along with your stepchildren?

- I have no stepchildren
- Worse than average
- Variable or average
- Better than average
- No contact

#### IV. Job

At any time in the past 6 months, did you have any paid jobs (including self-employment and military service)?

- No (please skip to Section V)
- Yes, please describe your job(s): \_\_\_\_\_

Circle 0, 1, or 2 beside items A-I to describe your work experience during the past 6 months:

0= Not True

1= Somewhat True

2= Often True

- 0 1 2 A. I work well with others
- 0 1 2 B. I have trouble getting along with bosses
- 0 1 2 C. I do my work well
- 0 1 2 D. I have trouble finishing my work
- 0 1 2 E. I am satisfied with my work situation
- 0 1 2 F. I do things that may cause me to lose my job
- 0 1 2 G. I stay away from my job even when I'm not sick or not on vacation
- 0 1 2 H. My job is too stressful for me
- 0 1 2 I. I worry too much about work

#### V. Education

At any time in the past 6 months, did you attend school, college, or any other educational or training program?

- No (please skip to Section VI)
- Yes

What kind of school or program have you attended? \_\_\_\_\_

What degree or diploma are you seeking? \_\_\_\_\_ Major? \_\_\_\_\_

When do expect to receive your degree or diploma? \_\_\_\_\_

Circle 0, 1, or 2 beside items A-E to describe your educational experience during the past 6 months:

0= Not True

1= Somewhat True

2= Often True

- 0 1 2 A. I get along well with other students
- 0 1 2 B. I achieve what I am capable of
- 0 1 2 C. I have trouble finishing assignments
- 0 1 2 D. I am satisfied with my educational situation
- 0 1 2 E. I do things that may cause me to fail

**VI. Do you have any illness, disability, or handicap?**

- No
- Yes, please describe:

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---

---

**VII. If you have concerns about family, work, education, or other things, please describe:**

---

---

---

**VII. Please describe the best things about yourself:**

---

---

---

**IX. Below is a list of items that describe people. For each item, please circle 0, 1, or 2 to describe yourself over the past 6 months. Please answer all items as well as you can, even if some do not seem to apply to you.**

0= Not True

1= Somewhat True

2= Often True

- 0 1 2 1. I am too forgetful
- 0 1 2 2. I make good use of my opportunities
- 0 1 2 3. I argue a lot
- 0 1 2 4. I work up to my ability
- 0 1 2 5. I blame others for my problems
- 0 1 2 6. I use drugs (other than alcohol and nicotine) for nonmedical purposes  
(describe): \_\_\_\_\_



- 0 1 2 7. I brag
- 0 1 2 8. I have trouble concentrating or paying attention for long
- 0 1 2 9. I can't get my mind off certain thoughts
- 0 1 2 10. I have trouble sitting still
- 0 1 2 11. I am too dependent on others
- 0 1 2 12. I feel lonely
- 0 1 2 13. I feel confused or in a fog
- 0 1 2 14. I cry a lot
- 0 1 2 15. I am pretty honest
- 0 1 2 16. I am mean to others
- 0 1 2 17. I daydream a lot
- 0 1 2 18. I deliberately try to hurt or kill myself
- 0 1 2 19. I try to get a lot of attention
- 0 1 2 20. I damage or destroy my things
- 0 1 2 21. I damage or destroy things belonging to others
- 0 1 2 22. I worry about my future
- 0 1 2 23. I break rules at work or elsewhere
- 0 1 2 24. I don't eat as well as I should
- 0 1 2 25. I don't get along with other people
- 0 1 2 26. I don't feel guilty after doing something I shouldn't
- 0 1 2 27. I am jealous of others
- 0 1 2 28. I get along badly with my family
- 0 1 2 29. I am afraid of certain animals, situations, or places (describe): \_\_\_\_\_
- 
- 0 1 2 30. My relations with the opposite sex are poor
- 0 1 2 31. I am afraid I might think or do something bad
- 0 1 2 32. I feel that I have to be perfect
- 0 1 2 33. I feel that no one loves me
- 0 1 2 34. I feel that others are out to get me
- 0 1 2 35. I feel worthless or inferior
- 0 1 2 36. I accidentally get hurt a lot, accident prone
- 0 1 2 37. I get in many fights
- 0 1 2 38. My relations with neighbors are poor
- 0 1 2 39. I hang around people who get in trouble
- 0 1 2 40. I hear sounds or voices that other people think aren't there (describe): \_\_\_\_\_
- 
- 0 1 2 41. I am impulsive or act without thinking
- 0 1 2 42. I would rather be alone than with others
- 0 1 2 43. I lie or cheat
- 0 1 2 44. I feel overwhelmed by my responsibilities
- 0 1 2 45. I am nervous or these
- 0 1 2 46. Parts of my body twitch or make nervous movements (describe): \_\_\_\_\_
- 
- 0 1 2 47. I lack self-confidence
- 0 1 2 48. I am not liked by others
- 0 1 2 49. I can do certain things better than other people

- 0 1 2 50. I am too fearful or anxious
- 0 1 2 51. I feel dizzy or lightheaded
- 0 1 2 52. I feel too guilty
- 0 1 2 53. I have trouble planning for the future
- 0 1 2 54. I feel tired without good reason
- 0 1 2 55. My moods swing between elation and depression
56. Physical problems without known medical cause:
- 0 1 2 a. Aches or pains (not stomach or headaches)
- 0 1 2 b. Headaches
- 0 1 2 c. Nausea, feel sick
- 0 1 2 d. Problems with eyes (not if corrected by glasses) (describe): \_\_\_\_\_
- 
- 0 1 2 e. Rashes or other skin problems
- 0 1 2 f. Stomachaches
- 0 1 2 g. Vomiting, throwing up
- 0 1 2 h. Heart pounding or racing
- 0 1 2 i. Numbness or tingling in body parts
- 0 1 2 57. I physically attack people
- 0 1 2 58. I pick my skin or other parts of my body(describe): \_\_\_\_\_
- 
- 0 1 2 59. I fail to finish things I should do
- 0 1 2 60. There is very little that I enjoy
- 0 1 2 61. My work performance is poor
- 0 1 2 62. I am poorly coordinated or clumsy
- 0 1 2 63. I would rather be with older people than with people of my own age
- 0 1 2 64. I have trouble with setting priorities
- 0 1 2 65. I refuse to talk
- 0 1 2 66. I repeat certain acts over and over (describe): \_\_\_\_\_
- 
- 0 1 2 67. I have trouble making or keeping friends
- 0 1 2 68. I scream or yell a lot
- 0 1 2 69. I am secretive or keep things to myself
- 0 1 2 70. I see things that other people think aren't there (describe): \_\_\_\_\_
- 
- 0 1 2 71. I am self-conscious or easily embarrassed
- 0 1 2 72. I worry about my family
- 0 1 2 73. I meet my responsibilities to my family
- 0 1 2 74. I show off or clown
- 0 1 2 75. I am too shy or timid
- 0 1 2 76. My behavior is irresponsible
- 0 1 2 77. I sleep more than most other people during day and/or night  
(describe): \_\_\_\_\_
- 
- 0 1 2 78. I have trouble making decisions
- 0 1 2 79. I have a speech problem (describe): \_\_\_\_\_
- 
- 0 1 2 80. I stand up for my rights

- 0 1 2 81. My behavior is very changeable  
0 1 2 82. I steal  
0 1 2 83. I am easily bored  
0 1 2 84. I do things that other people think are strange (describe): \_\_\_\_\_
- 

- 0 1 2 85. I have thoughts that other people would think are strange (describe): \_\_\_\_\_  
0 1 2 86. I am stubborn, sullen or irritable  
0 1 2 87. My moods or feelings change suddenly  
0 1 2 88. I enjoy being with people  
0 1 2 89. I rush into things without considering the risks  
0 1 2 90. I drink too much alcohol or get drunk  
0 1 2 91. I think about killing myself  
0 1 2 92. I do things that may cause me trouble with the law (describe): \_\_\_\_\_
- 

- 0 1 2 93. I talk too much  
0 1 2 94. I tease others a lot  
0 1 2 95. I have a hot temper  
0 1 2 96. I think about sex too much  
0 1 2 97. I threaten to hurt people  
0 1 2 98. I like to help others  
0 1 2 99. I dislike staying in one place for very long  
0 1 2 100. I have trouble sleeping (describe): \_\_\_\_\_
- 

- 0 1 2 101. I stay away from my job even when I'm not sick or not on vacation  
0 1 2 102. I don't have much energy  
0 1 2 103. I am unhappy, sad, or depressed  
0 1 2 104. I am louder than others  
0 1 2 105. People think I am disorganized  
0 1 2 106. I try to be fair to others  
0 1 2 107. I feel that I can't succeed  
0 1 2 108. I tend to lose things  
0 1 2 109. I like to try new things  
0 1 2 110. I wish I were of the opposite sex  
0 1 2 111. I keep from getting involved with others  
0 1 2 112. I worry a lot  
0 1 2 113. I worry about my relations with the opposite sex  
0 1 2 114. I fail to pay my debts or meet other financial responsibilities  
0 1 2 115. I feel restless or fidgety  
0 1 2 116. I get upset too easily  
0 1 2 117. I have trouble managing money or credit cards  
0 1 2 118. I am too impatient  
0 1 2 119. I am not good at details  
0 1 2 120. I drive too fast  
0 1 2 121. I tend to be late for appointments  
0 1 2 122. I have trouble keeping a job

0 1 2 123. I am a happy person

124. In the past 6 months, about how many times per day did you use tobacco (including smokeless tobacco)? \_\_\_\_\_ times per day.

125. In the past 6 months, on how many days were you drunk? \_\_\_\_\_ days.

124. In the past 6 months, on how many days did you use drugs for nonmedical purposes (including marijuana, cocaine, and other drugs, except alcohol and nicotine)? \_\_\_\_\_ days.

**APPENDIX D: FIGURES 1-11**

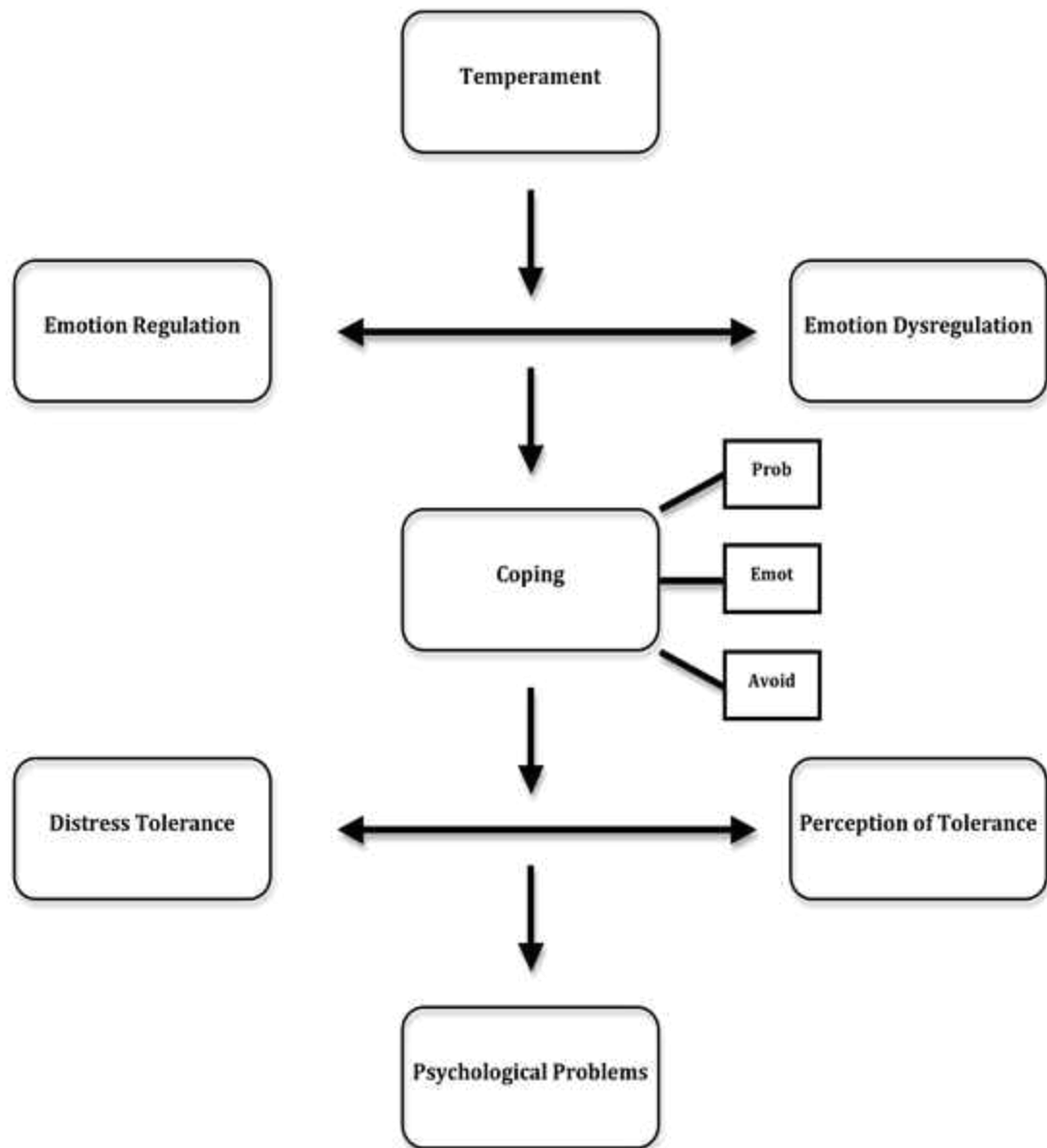


Figure 1. Graphical Representation of Hypothesized Model

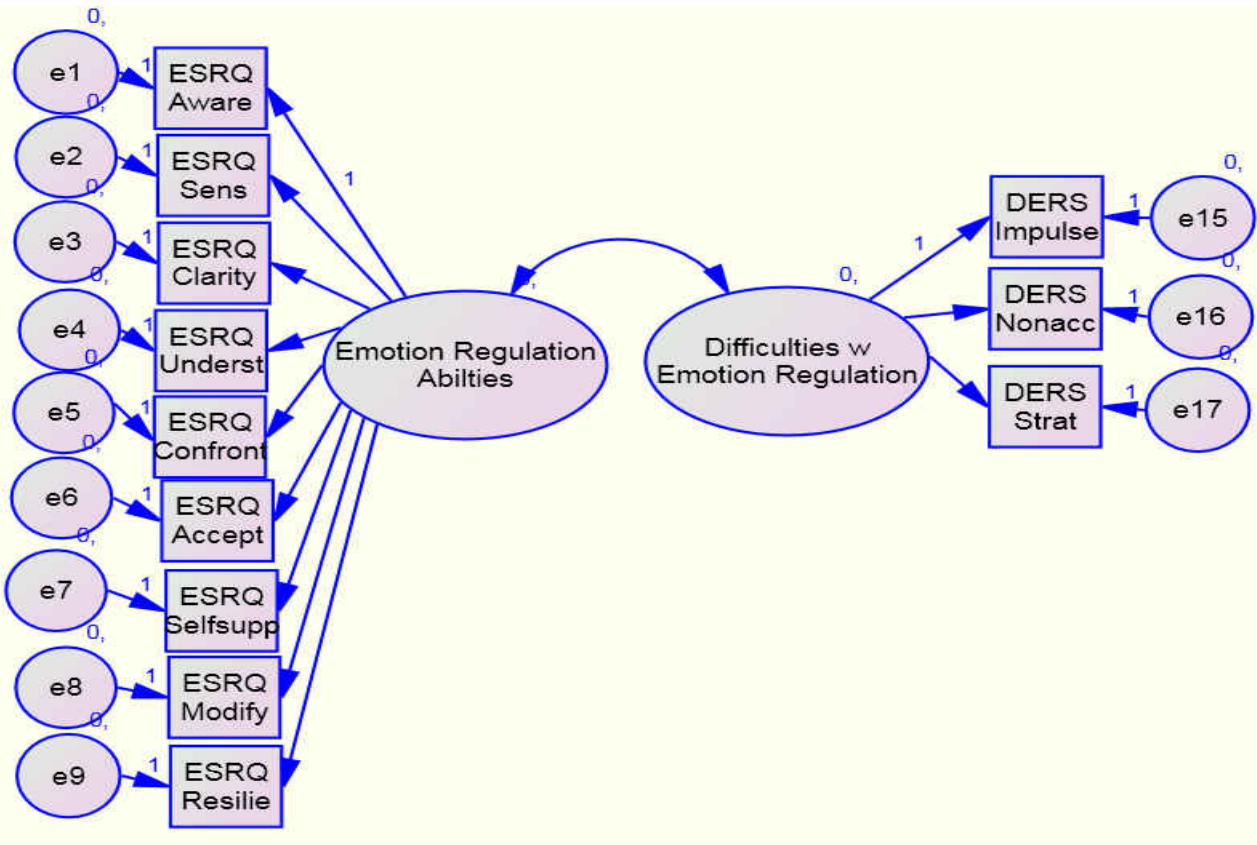


Figure 2 Graphical Representation of Emotion Regulation and Emotion Dysregulation

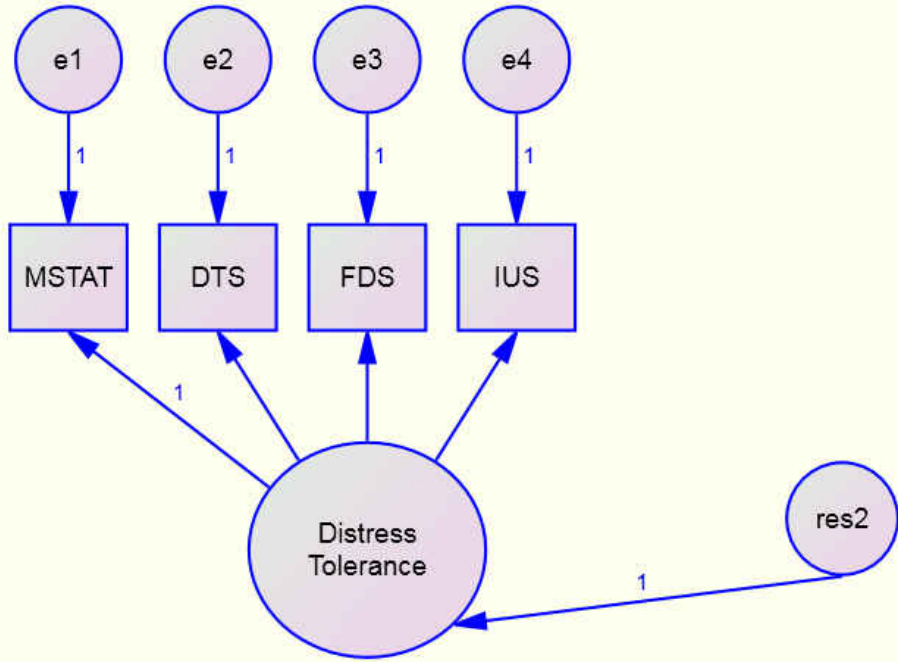


Figure 3 Graphical Representation of Distress Tolerance



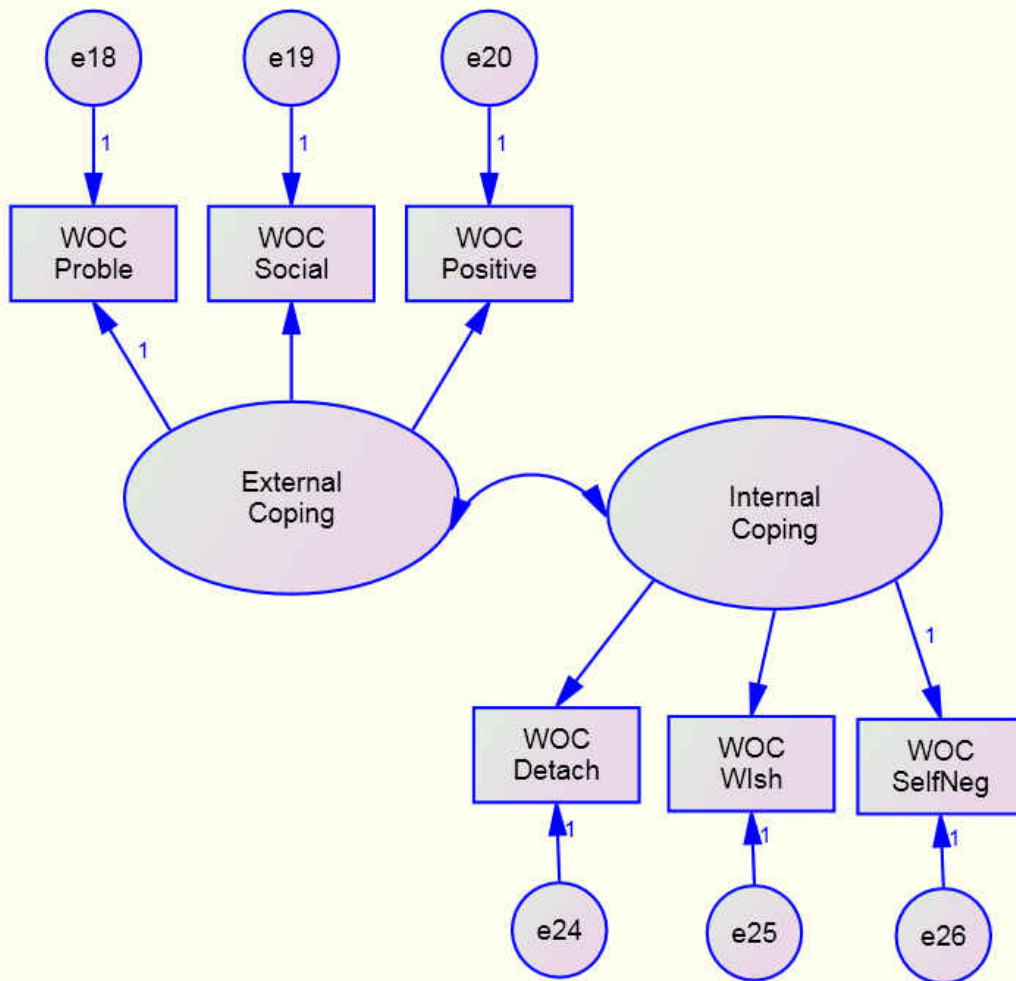


Figure 4 Graphical Representation of Coping Behaviors (Underidentified within all Full Models)

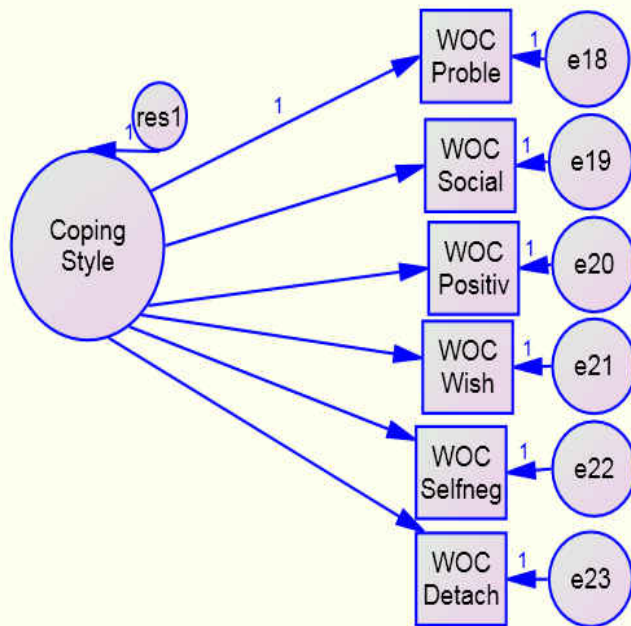


Figure 5 Graphical Representation of Coping Behaviors (Initial Full Models)

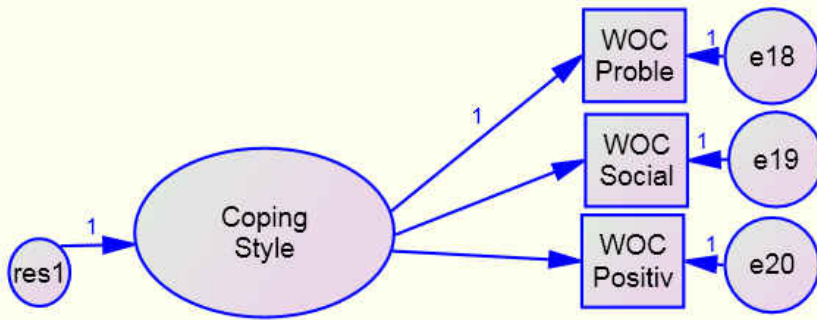


Figure 6 Graphical Representation of Coping Behaviors (Final Models)

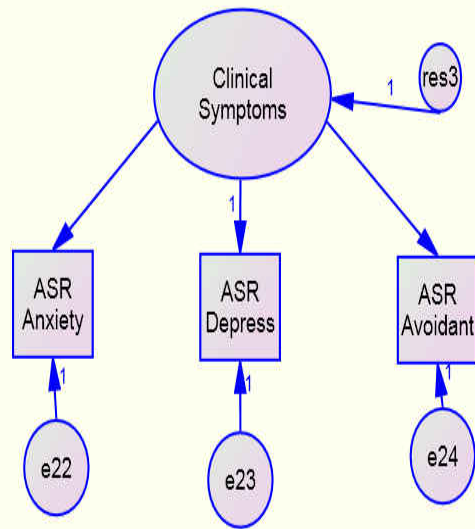


Figure 7 Graphical Representation of Clinical Symptoms (Final Model)

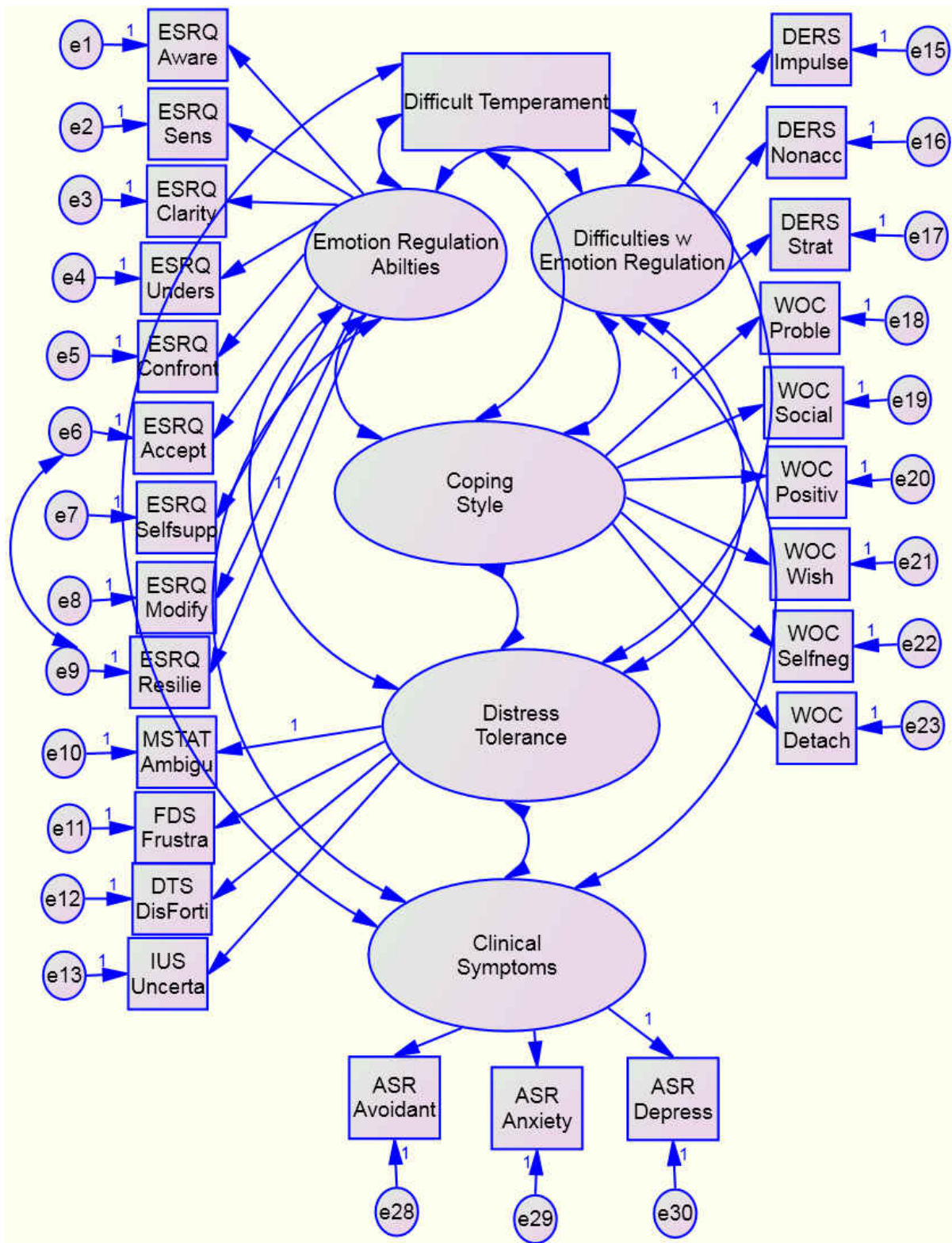


Figure 8 Initial Measurement Model

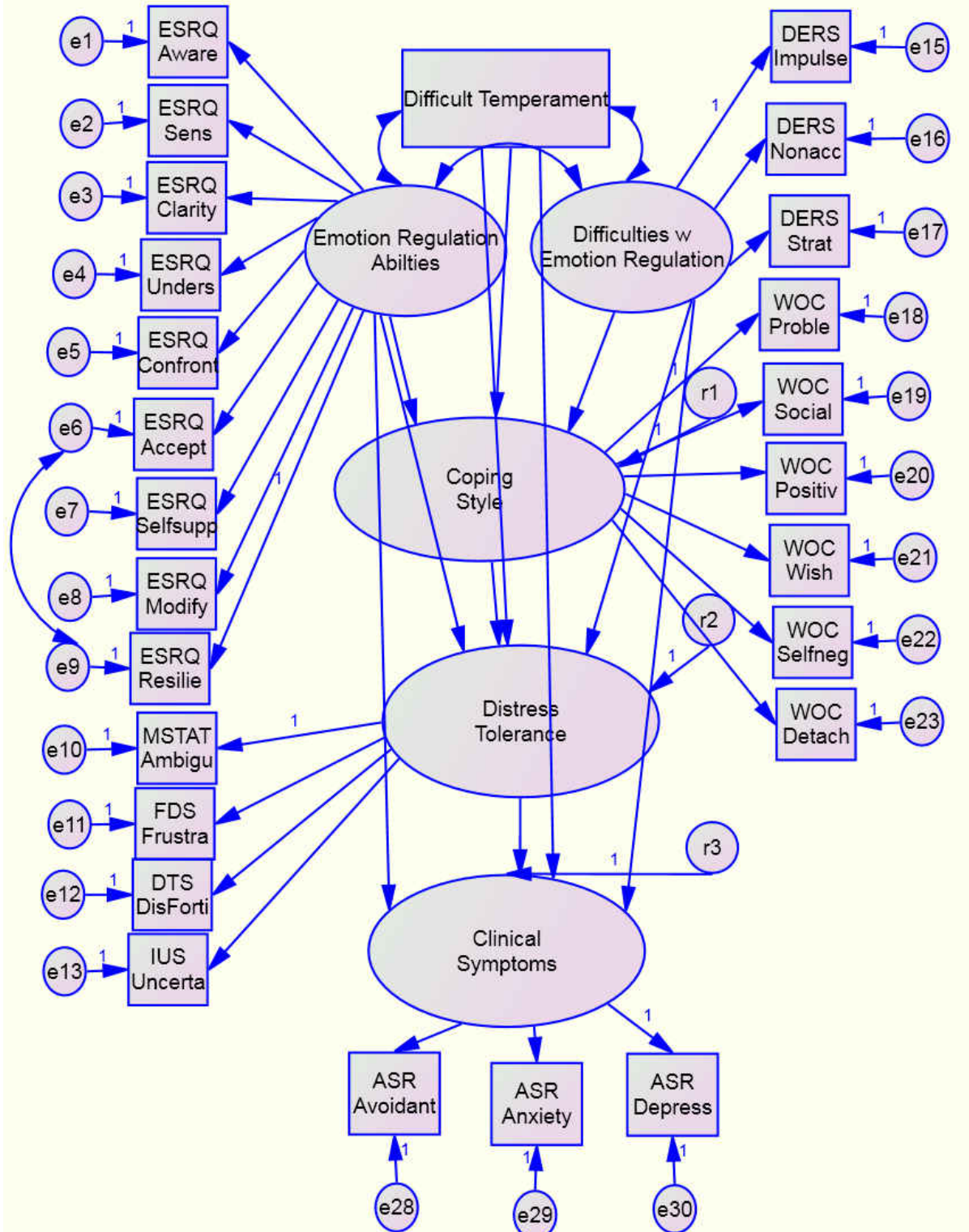


Figure 9 Initial Structural Model

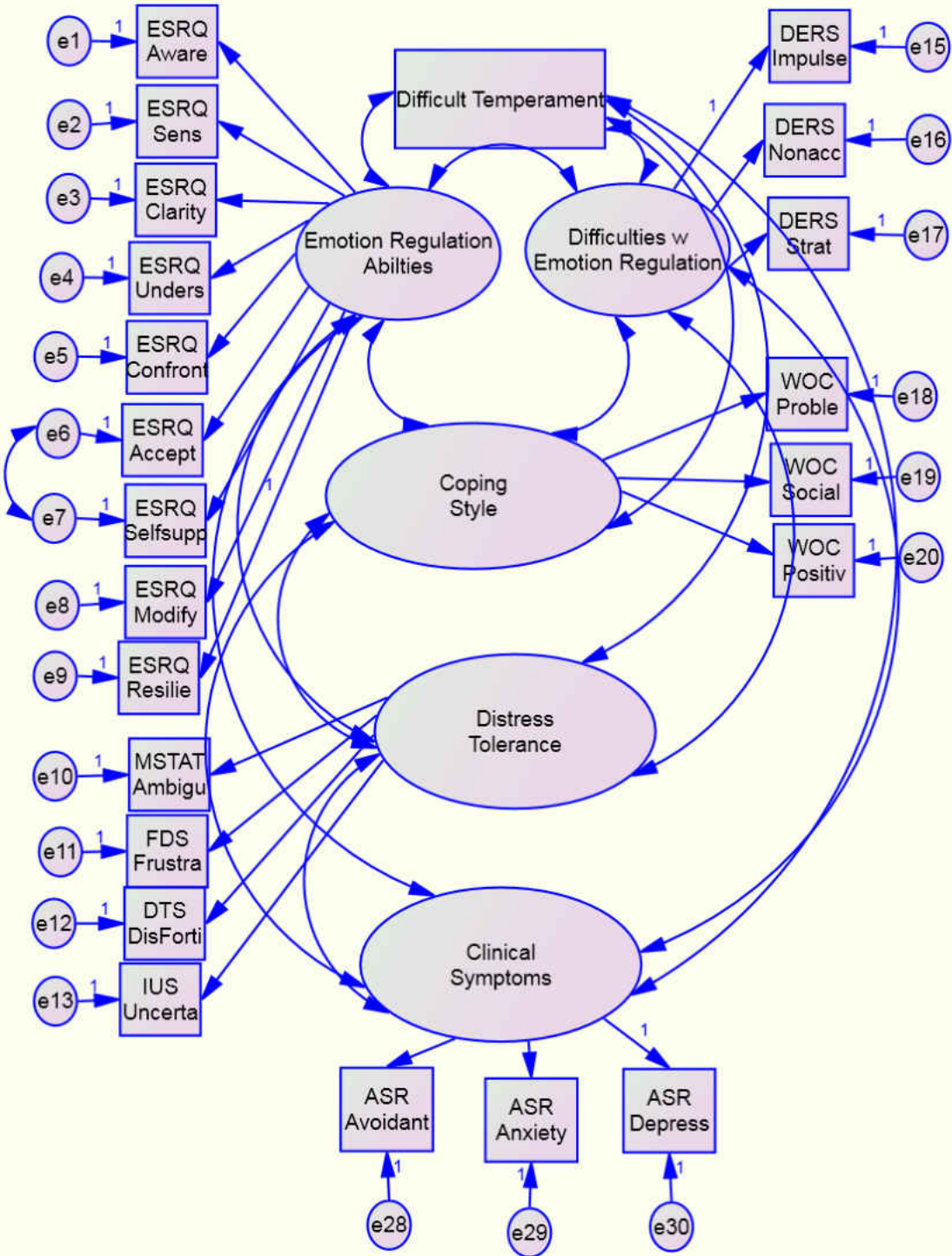


Figure 10 Revised Measurement Model

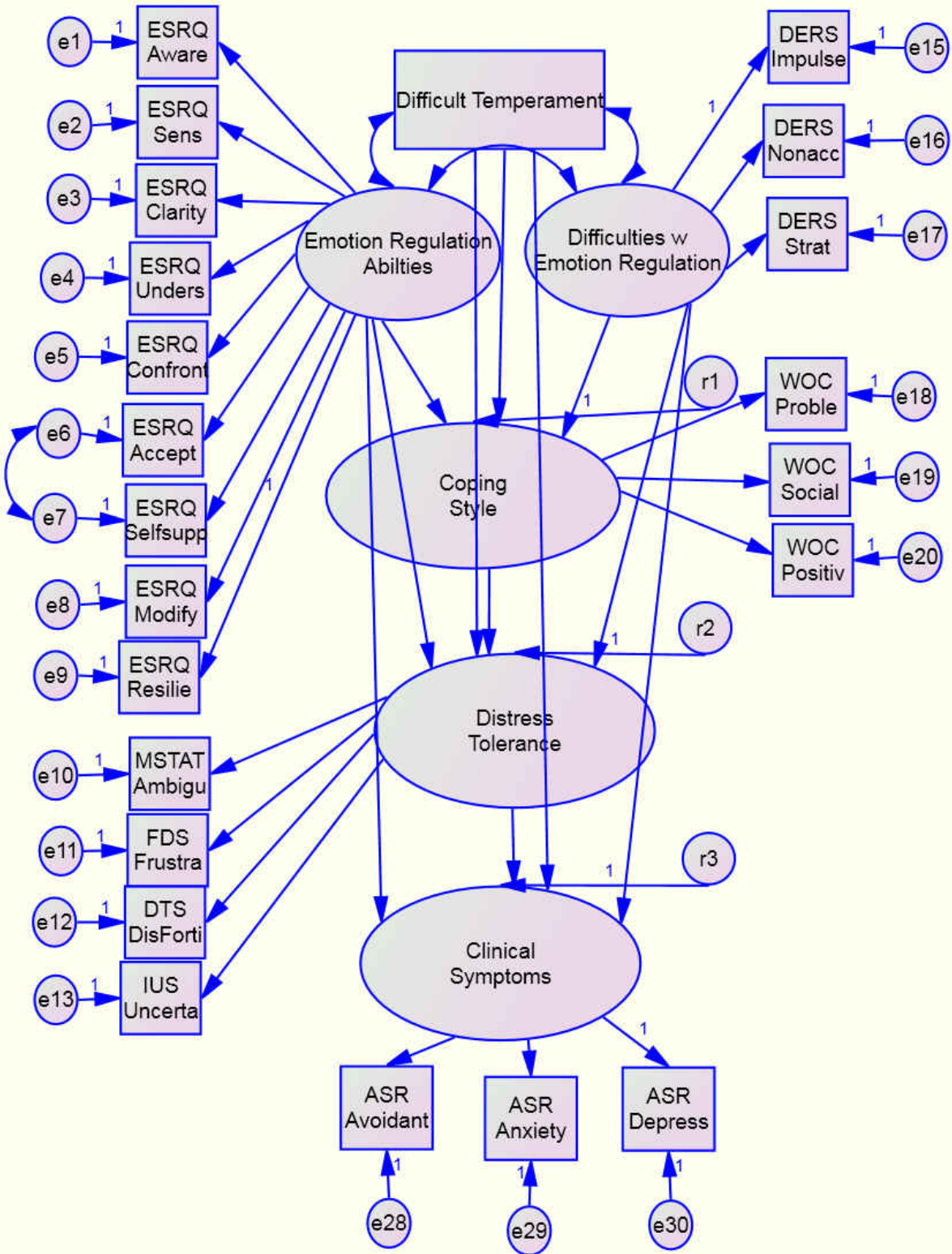


Figure 11 Final Structural Model



**APPENDIX E: TABLES 1-4**

Table 1 Means, Standard Deviations, and Ranges for All Variables of Interest

	Range	Minimum	Maximum	Mean	Std. Deviation
DOTSgen	3.00	1.00	4.00	2.49	0.67
DOTSflexridg	3.00	1.00	4.00	2.79	0.64
DOTSmood	2.71	1.29	4.00	3.57	0.53
ESRQAE	3.00	2.00	5.00	3.89	0.67
ESRQs	3.33	1.67	5.00	3.82	0.72
ESRQcl	3.00	2.00	5.00	3.95	0.71
ESRQun	3.33	1.67	5.00	4.00	0.73
ESRQacc	3.33	1.67	5.00	3.62	0.73
ESRQres	3.33	1.67	5.00	3.74	0.77
ESRQrc	3.67	1.33	5.00	3.73	0.76
ESRQses	3.33	1.67	5.00	3.95	0.76
ESRQmo	3.67	1.33	5.00	3.80	0.75
DERScl	2.80	1.00	3.80	1.99	0.72
DERSaw	3.17	1.00	4.17	2.19	0.75
DERSim	3.33	1.00	4.33	1.95	0.83
DERSnonacc	4.00	1.00	5.00	2.15	0.97
DERSgoals	4.00	1.00	5.00	2.72	0.93
DERSstrat	3.88	1.00	4.88	2.08	0.87
WOCprob	3.00	.00	3.00	1.56	0.59
WOCwish	3.00	.00	3.00	1.32	0.79
WOCdetachment	3.00	.00	3.00	1.17	0.63
WOCsocial	3.00	.00	3.00	1.52	0.65
WOCpositive	3.00	.00	3.00	1.53	0.80
WOC_self_neg	3.00	.00	3.00	1.14	0.64
MSTAT	2.77	1.77	4.55	3.15	0.45
IUS	3.67	1.00	4.67	2.45	0.68
DTStot	3.93	1.07	5.00	3.44	0.79
DIStot.abb	4.00	1.00	5.00	3.50	1.14
ASR_ADAPT_FAM	38.00	20.00	58.00	48.57	8.35
ASR_ADAPT_FRIENDS	44.00	20.00	64.00	50.80	7.55
ASR_ADAPT_PARTNER	32.00	28.00	60.00	48.42	8.31
ASR_ADAPT_JOB	28.00	30.00	58.00	49.96	6.51
ASR_DSM_Depressive	26.00	50.00	76.00	54.78	6.01
ASR_DSM_Anxiety	23.00	50.00	73.00	55.41	6.19
ASR_DSM_Avoidant_PD	27.00	50.00	77.00	55.07	6.42

Table 2 Pearson's Product Moment Correlations Among All Variables

	DOTS Gen	DOTS Mood	DOTS Flexridg	ESRQ Ae	ESRQ S	ESRQ CI	ESRQ Un	ESRQ Acc	ESRQ Res	ESRQ Rc	ESRQ Ses	ESRQ Mo	DERS Impul	DERS Nonacc	DERS Strat	WOC Prob	WOC Social	WOC Positive	WOC Wish	WOC Detach	WOC Selfneg	MSTAT Total	IUS Total	DERS Total	FDS Total	DTS Total	DIS Totabb	ASR DSM Depress	ASR DSM Anxiety	ASR DSM Somatic	ASR DSM Avoidant	ASR DSM ADHD	ASR DSM Antisocial	ASR Adapt Family	ASR Adapt Friend	ASR Adapt Partner	ASR Adapt Job				
DOTS Gen	1																																								
DOTS Mood	-0.06	1																																							
DOTS Flexridg	-0.28	0.24	1																																						
ESRQ Ae	-0.15	0.31	<b>0.23</b>	1																																					
ESRQ S	-0.11	0.28	<b>0.19</b>	<b>0.71</b>	1																																				
ESRQ CI	-0.15	0.29	<b>0.21</b>	<b>0.78</b>	<b>0.78</b>	1																																			
ESRQ Un	-0.15	0.30	<b>0.24</b>	<b>0.74</b>	<b>0.71</b>	<b>0.80</b>	1																																		
ESRQ Acc	-0.10	0.17	<b>0.18</b>	<b>0.64</b>	<b>0.57</b>	<b>0.61</b>	<b>0.58</b>	1																																	
ESRQ Res	-0.06	0.23	<b>0.23</b>	<b>0.63</b>	<b>0.53</b>	<b>0.61</b>	<b>0.60</b>	<b>0.80</b>	1																																
ESRQ Rc	-0.03	0.16	<b>0.17</b>	<b>0.57</b>	<b>0.52</b>	<b>0.51</b>	<b>0.49</b>	<b>0.62</b>	<b>0.57</b>	1																															
ESRQ Ses	-0.09	0.41	<b>0.31</b>	<b>0.67</b>	<b>0.67</b>	<b>0.66</b>	<b>0.67</b>	<b>0.56</b>	<b>0.58</b>	<b>0.53</b>	1																														
ESRQ Mo	-0.11	0.34	<b>0.30</b>	<b>0.70</b>	<b>0.68</b>	<b>0.67</b>	<b>0.71</b>	<b>0.61</b>	<b>0.62</b>	<b>0.56</b>	<b>0.75</b>	1																													
DERS Impul	0.22	-0.37	<b>-0.35</b>	<b>-0.34</b>	<b>-0.32</b>	<b>-0.38</b>	<b>-0.37</b>	<b>-0.24</b>	<b>-0.32</b>	<b>-0.16</b>	<b>-0.33</b>	<b>-0.29</b>	1																												
DERS Nonacc	0.20	-0.23	<b>-0.29</b>	<b>-0.13</b>	<b>-0.17</b>	<b>-0.20</b>	<b>-0.25</b>	<b>-0.04</b>	<b>-0.08</b>	<b>-0.03</b>	<b>-0.18</b>	<b>-0.20</b>	<b>0.58</b>	1																											
DERS Strat	0.21	-0.37	<b>-0.36</b>	<b>-0.31</b>	<b>-0.30</b>	<b>-0.32</b>	<b>-0.38</b>	<b>-0.23</b>	<b>-0.31</b>	<b>-0.18</b>	<b>-0.36</b>	<b>-0.39</b>	<b>0.79</b>	<b>0.72</b>	1																										
WOC Prob	-0.03	0.17	0.08	<b>0.32</b>	<b>0.30</b>	<b>0.26</b>	<b>0.28</b>	<b>0.29</b>	<b>0.24</b>	<b>0.21</b>	<b>0.41</b>	<b>0.36</b>	-0.03	0.05	-0.08	1																									
WOC Social	0.05	0.18	0.04	<b>0.14</b>	<b>0.19</b>	0.09	<b>0.14</b>	<b>0.12</b>	0.05	<b>0.12</b>	<b>0.21</b>	<b>0.18</b>	0.05	0.05	0.03	<b>0.58</b>	1																								
WOC Positive	0.00	0.18	<b>0.11</b>	<b>0.27</b>	<b>0.31</b>	<b>0.23</b>	<b>0.27</b>	<b>0.26</b>	<b>0.23</b>	<b>0.22</b>	<b>0.39</b>	<b>0.35</b>	-0.04	0.00	<b>-0.14</b>	<b>0.66</b>	<b>0.50</b>	1																							
WOC Wish	0.18	-0.04	-0.16	0.00	0.04	-0.01	-0.06	0.00	-0.07	-0.02	-0.01	-0.05	0.25	0.36	0.33	0.36	0.30	0.27	1																						
WOC Detach	0.15	-0.07	-0.14	0.05	0.03	0.01	-0.02	0.13	0.04	0.09	0.06	0.05	0.25	0.29	0.26	0.38	0.31	0.38	0.53	1																					
WOC Selfneg	0.14	-0.19	-0.20	-0.06	-0.08	-0.09	-0.15	0.02	-0.07	0.00	-0.06	-0.11	0.37	0.47	0.44	0.36	0.09	0.28	0.55	0.54	1																				
MSTAT Total	0.00	0.19	<b>0.47</b>	<b>0.24</b>	<b>0.23</b>	<b>0.17</b>	<b>0.21</b>	<b>0.23</b>	<b>0.28</b>	<b>0.23</b>	<b>0.35</b>	<b>0.35</b>	<b>-0.27</b>	<b>-0.22</b>	<b>-0.35</b>	<b>0.24</b>	<b>0.12</b>	<b>0.32</b>	<b>-0.13</b>	<b>-0.15</b>	-0.09	1																			
IUS Total	0.16	-0.23	<b>-0.44</b>	<b>-0.25</b>	<b>-0.24</b>	<b>-0.22</b>	<b>-0.26</b>	<b>-0.23</b>	<b>-0.28</b>	<b>-0.20</b>	<b>-0.31</b>	<b>-0.32</b>	<b>0.42</b>	<b>0.38</b>	<b>0.50</b>	-0.02	0.00	<b>-0.12</b>	<b>0.27</b>	<b>0.25</b>	<b>0.32</b>	<b>-0.54</b>	1																		
DERS Total	0.28	-0.37	<b>-0.40</b>	<b>-0.44</b>	<b>-0.44</b>	<b>-0.50</b>	<b>-0.53</b>	<b>-0.32</b>	<b>-0.38</b>	<b>-0.24</b>	<b>-0.46</b>	<b>-0.46</b>	<b>0.85</b>	<b>0.77</b>	<b>0.91</b>	<b>-0.13</b>	-0.04	<b>-0.16</b>	<b>0.29</b>	<b>0.25</b>	<b>0.44</b>	<b>-0.36</b>	<b>0.51</b>	1																	
FDS Total	0.23	-0.17	<b>-0.38</b>	<b>-0.18</b>	-0.09	-0.08	<b>-0.15</b>	<b>-0.18</b>	<b>-0.22</b>	-0.06	<b>-0.15</b>	<b>-0.18</b>	<b>0.33</b>	<b>0.29</b>	<b>0.40</b>	<b>0.06</b>	<b>0.11</b>	-0.05	<b>0.33</b>	<b>0.29</b>	<b>0.30</b>	<b>-0.34</b>	<b>0.57</b>	<b>0.39</b>	1																
DTS Total	-0.26	0.25	<b>0.41</b>	<b>0.31</b>	<b>0.25</b>	<b>0.31</b>	<b>0.38</b>	<b>0.31</b>	<b>0.40</b>	<b>0.21</b>	<b>0.34</b>	<b>0.38</b>	<b>-0.54</b>	<b>-0.50</b>	<b>-0.62</b>	0.05	-0.07	0.06	<b>-0.38</b>	<b>-0.22</b>	<b>-0.41</b>	<b>0.34</b>	<b>-0.52</b>	<b>-0.64</b>	<b>-0.48</b>	1															
DIS Totabb	0.08	0.02	0.23	0.13	0.18	0.17	0.14	0.23	0.23	0.20	0.16	0.20	-0.13	-0.03	-0.10	0.02	-0.02	0.03	-0.07	0.03	-0.04	0.24	-0.25	-0.12	-0.11	0.15	1														
ASR DSM Depress	0.15	-0.36	<b>-0.29</b>	<b>-0.19</b>	<b>-0.26</b>	<b>-0.25</b>	<b>-0.26</b>	<b>-0.18</b>	<b>-0.24</b>	-0.07	<b>-0.30</b>	<b>-0.37</b>	<b>0.40</b>	<b>0.46</b>	<b>0.53</b>	-0.02	0.01	-0.10	<b>0.19</b>	<b>0.13</b>	<b>0.34</b>	<b>-0.16</b>	<b>0.37</b>	<b>0.51</b>	<b>0.33</b>	<b>-0.39</b>	-0.04	1													
ASR DSM Anxiety	0.17	-0.14	<b>-0.25</b>	-0.10	-0.12	<b>-0.11</b>	<b>-0.17</b>	<b>-0.12</b>	<b>-0.13</b>	-0.05	<b>-0.17</b>	<b>-0.25</b>	<b>0.24</b>	<b>0.35</b>	<b>0.35</b>	0.01	0.06	-0.03	<b>0.22</b>	<b>0.14</b>	<b>0.26</b>	<b>-0.21</b>	<b>0.39</b>	<b>0.34</b>	<b>0.29</b>	<b>-0.38</b>	<b>-0.11</b>	<b>0.61</b>	1												
ASR DSM Somatic	0.20	-0.16	-0.20	-0.16	-0.13	-0.20	-0.17	-0.13	-0.17	-0.01	-0.10	-0.16	0.23	0.20	0.25	0.11	0.10	0.08	0.14	0.12	0.24	-0.01	0.15	0.26	0.24	-0.21	-0.01	0.53	0.46	1											
ASR DSM Avoidant	0.10	-0.34	<b>-0.32</b>	<b>-0.16</b>	<b>-0.20</b>	<b>-0.14</b>	<b>-0.22</b>	<b>-0.14</b>	<b>-0.19</b>	<b>-0.11</b>	<b>-0.29</b>	<b>-0.33</b>	<b>0.23</b>	<b>0.28</b>	<b>0.31</b>	-0.10	<b>-0.11</b>	<b>-0.14</b>	0.06	0.05	<b>0.22</b>	<b>-0.19</b>	0.34	<b>0.32</b>	<b>0.23</b>	<b>-0.27</b>	-0.09	<b>0.56</b>	<b>0.47</b>	<b>0.28</b>	1										
ASR DSM ADHD	0.14	-0.14	-0.13	0.05	0.01	0.02	0.00	0.01	-0.03	0.02	0.05	0.02	0.03	0.02	0.04	0.08	-0.04	0.03	0.05	0.04	0.13	-0.13	0.04	0.06	0.14	-0.04	-0.04	0.09	0.06	0.11	0.13	1									
ASR DSM Antisocial	0.25	-0.22	-0.22	-0.07	-0.16	-0.10	-0.15	-0.04	-0.11	-0.04	-0.12	-0.11	0.40	0.24	0.29	0.08	0.07	0.06	0.20	0.22	0.23	-0.03	0.27	0.33	0.26	-0.19	-0.07	0.38	0.18	0.30	0.30	0.087	1								
ASR Adapt Fam	0.01	0.05	0.00	-0.01	0.13	0.08	0.05	-0.01	-0.02	-0.02	0.10	0.07	-0.03	-0.05	-0.06	0.02	0.09	0.12	0.07	0.11	-0.01	-0.02	-0.13	-0.07	-0.02	0.00	-0.04	-0.19	-0.07	-0.06	-0.19	0.33	-0.14	1							
ASR Adapt Friend	-0.02	0.23	0.12	0.14	0.08	0.04	0.10	0.15	0.16	0.13	0.17	0.15	-0.15	-0.12	-0.16	0.16	0.12	0.21	-0.06	0.03	-0.02	0.14	-0.12	-0.16	-0.05	0.19	0.08	-0.09	-0.06	0.01	-0.19	-0.17	-0.04	0.12	1						
ASR Adapt Partner	0.11	0.34	0.10	0.36	0.29	0.26	0.24	0.21	0.15	0.20	0.19	0.26	-0.19	-0.19	-0.25	-0.04	0.05	-0.02	0.00	-0.11	-0.15	0.02	-0.17	-0.24	-0.33	0.21	0.04	-0.26	-0.17	-0.13	-0.16	-0.147	-0.14	0.02	0.17	1					
ASR Adapt Job	-0.17	0.24	0.22	0.16	0.17	0.16	0.15	0.13	0.16	0.11	0.17	0.19	-0.25	-0.26	-0.26	0.06	0.06	0.02	-0.11	-0.03	-0.21	0.18	-0.29	-0.29	-0.20	0.28	0.12	-0.35	-0.26	-0.18	-0.21	-0.26	-0.41	0.09	0.22	0.44	1				

Colored and Bolded Values = Indicates Significant Relationship Between Manifest Variables that Comprise Latent Variables

Table 3 Factor Loadings for Emotion Regulation and Emotion Dysregulation

Factor Matrix <sup>a</sup>			Pattern Matrix <sup>a</sup>			Structure Matrix		
	Factor			Factor			Factor	
	1	2		1	2		1	2
ESRQAe	0.84		ESRQAe	0.85		ESRQAe	0.85	
ESRQs	0.80		ESRQs	0.80		ESRQs	0.81	
ESRQcl	0.85		ESRQcl	0.83		ESRQcl	0.85	
ESRQun	0.84		ESRQun	0.79		ESRQun	0.83	
ESRQacc	0.75		ESRQacc	0.82		ESRQacc	0.78	
ESRQres	0.75		ESRQres	0.78		ESRQres	0.77	
ESRQrc	0.64		ESRQrc	0.71		ESRQrc	0.67	
ESRQses	0.79		ESRQses	0.77		ESRQses	0.79	
ESRQmo	0.83		ESRQmo	0.81		ESRQmo	0.83	
DERSim		0.64	DERSim		0.76	DERSim		0.80
DERSnonacc		0.70	DERSnonacc		0.78	DERSnonacc		0.75
DERSstrat		0.80	DERSstrat		0.94	DERSstrat		0.96

Table 4 Correlations Among Latent Constructs

	Temperament	Emotion Regulation	Emotion Dysregulation	Coping Behaviors	Distress Tolerance	Psychological Symptoms
Temperament	1					
Emotion Regulation	0.29**	1				
Emotion Dysregulation	-0.37**	-0.41**	1			
Coping Behaviors	0.10	0.41**	-0.09	1		
Distress Tolerance	-0.60**	-0.43**	0.71**	-0.09	1	
Clinical Symptoms	-0.36**	-0.34**	0.58**	-0.05	0.57**	1

**Note.** \*\*  $p < .001$

## REFERENCES

- Achenbach, T. M., Bernstein, A., & Dumenci, L. (2005). DSM-oriented scales and statistically based syndromes for ages 18 to 59: Linking taxonomic paradigms to facilitate multitaxonomic approaches. *Journal of Personality Assessment, 84*(1), 49-63.  
doi:10.1207/s15327752jpa8401\_10
- Achenbach, T. M., & Rescorla, L. A. (2003). *Manual for the ASEBA Adult Forms & Profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families
- Aldao, A., & Nolen-Hoeksema, S. (2010). Specificity of cognitive emotion regulation strategies: A transdiagnostic examination. *Behaviour Research and Therapy, 48*(10), 974-983.  
doi:10.1016/j.brat.2010.06.002
- Aldao, A., & Nolen-Hoeksema, S. (2012). When are adaptive strategies most predictive of psychopathology? *Journal of Abnormal Psychology, 121*(1), 276-281.  
doi:10.1037/a0023598
- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217-237.  
doi:10.1016/j.cpr.2009.11.004
- Amstadter, A. B., & Vernon, L. L. (2008). A preliminary examination of thought suppression, emotion regulation, and coping in a trauma-exposed sample. *Journal of Aggression, Maltreatment and Trauma, 17*(3), 279-295. doi:10.1080/10926770802403236
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equations modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*, 411-423.

- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55, 469-480.
- Asberg, K. K., Bowers, C., Renk, K., & McKinney, C. (2008). A structural equation modeling approach to the study of stress and psychological adjustment in emerging adults. *Child Psychiatry and Human Development*, 39(4), 481-501. doi:10.1007/s10578-008-0102-0
- Axelrod, S. R., Pereplechikova, F., Holtzman, K., & Sinha, R. (2011). Emotion regulation and substance use frequency in women with substance dependence and borderline personality disorder receiving dialectical behavior therapy. *The American Journal of Drug and Alcohol Abuse*, 37(1), 37-42. doi:10.3109/00952990.2010.535582
- Bargh, J. A., & Williams, L. E. (2007). The nonconscious regulation of emotion. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 429-445). New York, NY: Guilford Press.
- Barrett, L., & Gross, J. J. (2001). Emotional intelligence: A process model of emotion representation and regulation. In T. J. Mayne & G. A. Gonanno (Ed.), *Emotions: Current issues and future directions* (pp. 285-310). New York, NY: Guilford Press.
- Berenbaum, H., Raghavan, C., Le, H., Vernon, L. L., & Gomez, J. J. (2003). A taxonomy of emotional disturbances. *Clinical Psychology: Science and Practice*, 10(2), 206-226. doi:10.1093/clipsy/bpg011
- Berking, M., Ebert, D., Cuijpers, P., & Hofmann, S. G. (2013). Emotion regulation skills training enhances the efficacy of inpatient cognitive behavioral therapy for major depressive disorder: A randomized controlled trial. *Psychotherapy and Psychosomatics*, 82(4), 234-245. doi:10.1159/000348448

Berking, M., Margraf, M., Ebert, D., Wupperman, P., Hofmann, S. G., & Junghanns, K. (2011).

Deficits in emotion-regulation skills predict alcohol use during and after cognitive-behavioral therapy for alcohol dependence. *Journal of Consulting and Clinical Psychology, 79*(3), 307-318. doi:10.1037/a0023421

Berking, M., Meier, C., & Wupperman, P. (2010). Enhancing emotion-regulation skills in police officers: Results of a pilot controlled study. *Behavior Therapy, 41*(3), 329-339.

doi:10.1016/j.beth.2009.08.001

Berking, M., Orth, U., Wupperman, P., Meier, L. L., & Caspar, F. (2008). Prospective effects of emotion-regulation skills on emotional adjustment. *Journal of Counseling Psychology, 55*(4), 485-494. doi:10.1037/a0013589

Berking, M., Poppe, C., Luhmann, M., Wupperman, P., Jaggi, V., & Seifritz, E. (2012). Is the association between various emotion-regulation skills and mental health mediated by the ability to modify emotions? Results from two cross-sectional studies. *Journal of Behavior Therapy and Experimental Psychiatry, 43*(3), 931-937. doi:10.1016/j.jbtep.2011.09.009

Berking, M., & Wupperman, P. (2012). Emotion regulation and mental health: Recent findings, current challenges, and future directions. *Current Opinion in Psychiatry, 25*(2), 128-134.

doi:10.1097/YCO.0b013e3283503669

Berking, M., Wupperman, P., Reichardt, A., Pejic, T., Dippel, A., & Znoj, H. (2008). Emotion-regulation skills as a treatment target in psychotherapy. *Behaviour Research and Therapy, 46*(11), 1230-1237. doi:10.1016/j.brat.2008.08.005

Bernstein, A., Zvolensky, M. J., Vujanovic, A. A., & Moos, R. (2009). Integrating anxiety

sensitivity, distress tolerance, and discomfort intolerance: A hierarchical model of affect



- sensitivity and tolerance. *Behavior Therapy*, 40(3), 291-301.  
doi:10.1016/j.beth.2008.08.001
- Blair, K. A., Denham, S. A., Kochanoff, A., & Whipple, B. (2004). Playing it cool: Temperament, emotion regulation, and social behavior in preschoolers. *Journal of School Psychology*, 42(6), 419-443. doi:10.1016/j.jsp.2004.10.002
- Bors, D. A., Gruman, J. A., & Shukla, S. S. (2010). Measuring tolerance of ambiguity: Item polarity, dimensionality, and criterion validity. *European Review of Applied Psychology/Revue Européenne De Psychologie Appliquée*, 60(4), 239-245.  
doi:10.1016/j.erap.2010.07.001
- Buchanan, R. D. (May 1994). The development of the Minnesota Multiphasic Personality Inventory. *Journal of the History of the Behavioral Sciences* 30(2),148–61.
- Carleton, R., Gosselin, P., & Asmundson, G. G. (2010). The intolerance of uncertainty index: Replication and extension with an English sample. *Psychological Assessment*, 22(2), 396-406. doi:10.1037/a0019230
- Carleton, R., Norton, M. J., & Asmundson, G. G. (2007). Fearing the unknown: A short version of the Intolerance of Uncertainty Scale. *Journal of Anxiety Disorders*, 21(1), 105-117.  
doi:10.1016/j.janxdis.2006.03.014
- Chafouleas, S. M., Jaffery, R., Riley-Tillman, T. C., Christ, T. J., & Sen, R. (2013). The impact of target, wording, and duration on rating accuracy for direct behavior rating. *Assessment for Effective Intervention*, 39(1), 39-53. doi:10.1177/1534508413489335

- Chapman, A. L., Gratz, K. L., & Brown, M. Z. (2006). Solving the puzzle of deliberate self-harm: The experiential avoidance model. *Behaviour Research and Therapy*, *44*(3), 371-394. doi:10.1016/j.brat.2005.03.005
- Chess, S., & Thomas, A. (1996). *Temperament: Theory and practice*. Philadelphia, PA, US: Brunner/Mazel
- Cicchetti, D., Ackerman B. P., & Izard C. E. (1995). Emotions and emotion regulation in developmental psychopathology. *Development and Psychopathology*, *7*(1), 1-10. doi:10.1017/S0954579400006301
- Cisler, J. M., Olatunji, B. O., Feldner, M. T., & Forsyth, J. P. (2010). Emotion regulation and the anxiety disorders: An integrative review. *Journal of Psychopathology and Behavioral Assessment*, *32*(1), 68-82. doi:10.1007/s10862-009-9161-1.
- Davis, H. P., King, J. H., Klebe, K. J., Bajszar, G., Bloodworth, M. R., & Wallick, S. L. (1997). The detection of simulated malingering using a computerized priming test. *Archives of Clinical Neuropsychology*, *12*(2), 145-153. doi:10.1016/S0887-6177(96)00011-X.
- Davidson, R. J., Jackson, D. C., & Kalin, N. H. (2000). Emotion, plasticity, context, and regulation: Perspectives from affective neuroscience. *Psychological Bulletin*, *126*(6), 890-909. doi:10.1037/0033-2909.126.6.890
- DeRoma, V. M., Martin, K. M., & Kessler, M. (2003). The relationship between tolerance for ambiguity and need for course structure. *Journal of Instructional Psychology*, *30*(2), 104-109.
- Dillon, D. G., Deveney, C. M., & Pizzagalli, D. A. (2011). From basic processes to real-world problems: How research on emotion and emotion regulation can inform understanding of

- psychopathology, and vice versa. *Emotion Review*, 3(1), 74-82.  
doi:10.1177/1754073910380973
- Ebert, D. D., Christ, O., & Berking, M. (2013). Entwicklung und Validierung eines Fragebogens zur emotionspezifischen Selbsteinschätzung emotionaler Kompetenzen (SEK-ES). = Development and validation of a self-report instrument for the assessment of emotion-specific regulation skills (ERSQ-ES). *Diagnostica*, 59(1), 17-32. doi:10.1026/0012-1924/a000079
- Eftekhari, A., Zoellner, L. A., & Vigil, S. A. (2009). Patterns of emotion regulation and psychopathology. *Anxiety, Stress and Coping: An International Journal*, 22(5), 571-586.  
doi:10.1080/10615800802179860
- Eifert, G. H., & Heffner, M. (2003). The effects of acceptance versus control contexts on avoidance of panic-related symptoms. *Journal of Behavior Therapy and Experimental Psychiatry*, 34(3-4), 293-312. doi:10.1016/j.jbtep.2003.11.001
- Folkman, S. & Lazarus, R.S. (1985). If it changes, it must be a process: Study of emotion and coping during stages of a college examination. *Journal of Personality and Social Psychology*. 48, 150-170.
- Garg, R. K. (1996). The influence of positive and negative wording and issue involvement on responses to Likert scales in marketing research. *Journal of The Market Research Society*, 38(3), 235-246.
- Garnefski, N., Kraaij, V., & van Etten, M. (2005). Specificity of relations between adolescents' cognitive emotion regulation strategies and internalizing and externalizing

- psychopathology. *Journal of Adolescence*, 28(5), 619-631.  
doi:10.1016/j.adolescence.2004.12.009
- Garson, D. G. (2012). *Statistical associates' "Blue Book" series: Structural equation modeling. 2012 edition*. Asheboro, NC: Statistical Publishing Associates.
- Garson, D. G. (2013). *Statistical associates' "Blue Book" series: Factor analysis. Book 15*. Asheboro, NC: Statistical Publishing Associates.
- Gosselin, P., Ladouceur, R., Evers, A., Laverdière, A., Routhier, S., & Tremblay-Picard, M. (2008). Evaluation of intolerance of uncertainty: Development and validation of a new self-report measure. *Journal of Anxiety Disorders*, 22(8), 1427-1439.  
doi:10.1016/j.janxdis.2008.02.005
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, 26(1), 41-54. doi:10.1023/B:JOBA.0000007455.08539.94
- Gray, J. A. (1994). Three fundamental emotion systems. In P. Ekman & R. J. Davidson (Eds.) *The nature of emotion: Fundamental questions* (pp. 243-247). New York: Oxford University Press.
- Greenberg, L. S. (2002). Integrating an emotion-focused approach to treatment into psychotherapy integration. *Journal of Psychotherapy Integration*, 12(2), 154-189.  
doi:10.1037/1053-0479.12.2.154
- Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, 2(3), 271-299. doi:10.1037/1089-2680.2.3.271

- Gross, J. J. (1999). Emotion regulation: Past, present, future. *Cognition and Emotion*, *13*(5), 551-573. doi:10.1080/026999399379186
- Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology*, *39*(3), 281-291. doi:10.1017/S0048577201393198
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, *85*(2), 348-362. doi:10.1037/0022-3514.85.2.348
- Hamilton, J. B., Stewart, B. J., Crandell, J. L., & Lynn, M. R. (2009). Development of the ways of helping questionnaire: A measure of preferred coping strategies for older African American cancer survivors. *Research in Nursing and Health*, *32*(3), 243-259. doi:10.1002/nur.20321
- Harrington, N. (2005). The Frustration Discomfort Scale: Development and psychometric properties. *Clinical Psychology and Psychotherapy*, *12*(5), 374-387. doi:10.1002/cpp.465
- Harrington, N. (2006). Frustration intolerance beliefs: Their relationship with depression, anxiety, and anger in a clinical population. *Cognitive Therapy and Research*, *30*(6), 699-709. doi:10.1007/s10608-006-9061-6.
- Hayes, S. C., Strosahl, K. D., & Wilson, K. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York, NY: The Guilford Press.
- Hayes, S., Wilson, K., Gifford, E., Follette, V., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology*, *64*, 1152-1168. doi: 10.1037/0022-006X.64.6.1152

- Hofmann, S. G., Heering, S., Sawyer, A. T., & Asnaani, A. (2009). How to handle anxiety: The effects of reappraisal, acceptance, and suppression strategies on anxious arousal. *Behaviour Research and Therapy*, *47*, 389-394. doi: 10.1016/j.brat.2009.02.010
- Howell, A. N., Leyro, T. M., Hogan, J., Buckner, J. D., & Zvolensky, M. J. (2010). Anxiety sensitivity, distress tolerance, and discomfort intolerance in relation to coping and conformity motives for alcohol use and alcohol use problems among young adult drinkers. *Addictive Behaviors*, *35*(12), 1144-1147. doi:10.1016/j.addbeh.2010.07.003
- Jackson, D.N. (1984). *Personality research form manual (3rd ed.)*. Port Heron: Research Psychologists Press.
- Izard, C. E., King, K. A., Trentacosta, C. J., Morgan, J. K., Laurenceau, J., Krauthamer-Ewing, E. S., & Finlon, K. J. (2008). Accelerating the development of emotion competence in Head Start children: Effects on adaptive and maladaptive behavior. *Development And Psychopathology*, *20*(1), 369-397. doi:10.1017/S0954579408000175
- Kim, J., & Cicchetti, D. (2010). Longitudinal pathways linking child maltreatment, emotion regulation, peer relations, and psychopathology. *Journal of Child Psychology and Psychiatry*, *51*(6), 706-716. doi:10.1111/j.1469-7610.2009.02202.x
- Kring, A. M., & Werner, K. H. (2004). Emotion regulation and psychopathology. In P. Philippot & R. S. Feldman (Eds.), *The regulation of emotion* (pp. 359-385). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Kutz, A., Marshall, E., Bernstein, A., & Zvolensky, M. J. (2010). Evaluating emotional sensitivity and tolerance factors in the prediction of panic-relevant responding to a

- biological challenge. *Journal of Anxiety Disorders*, 24(1), 16-22.  
doi:10.1016/j.janxdis.2009.07.025
- Larsen, R. J. (2000). Toward a science of mood regulation. *Psychological Inquiry*, 11(3), 129-141. doi:10.1207/S15327965PLI1103\_01
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Leahy, R. L. (2002). A model of emotional schemas. *Cognitive and Behavioral Practice*, 9(3), 177-190. doi:10.1016/S1077-7229(02)80048-7
- Leen-Feldner, E. W., Zvolensky, M. J., Feldner, M. T., & Lejuez, C. W. (2004). Behavioral inhibition: Relation to negative emotion regulation and reactivity. *Personality and Individual Differences*, 36(6), 1235-1247. doi:10.1016/S0191-8869(02)00113-7
- Leyro, T. M., Zvolensky, M. J., & Bernstein, A. (2010). Distress tolerance and psychopathological symptoms and disorders: A review of the empirical literature among adults. *Psychological Bulletin*, 136(4), 576-600. doi:10.1037/a0019712
- Linehan, M. M. (1993). *Skills training manual for treating borderline personality disorder*. New York, NY, US: Guilford Press.
- Liverant, G. I., Brown, T. A., Barlow, D. H., & Roemer, L. (2008). Emotion regulation in unipolar depression: The effects of acceptance and suppression of subjective emotional experience on the intensity and duration of sadness and negative affect. *Behaviour Research and Therapy*, 46(11), 1201-1209. doi:10.1016/j.brat.2008.08.001
- Lynch, T. R., & Mizon, G. A. (2010). Distress over-tolerance and distress intolerance: A behavioral perspective. In M. J. Zvolensky, A. Bernstein, & A. A. Vujanovic (Eds.), *Distress tolerance*. New York, NY: Guilford Press.

- Marroquín, B. (2011). Interpersonal emotion regulation as a mechanism of social support in depression. *Clinical Psychology Review, 31*(8), 1276-1290. doi:10.1016/j.cpr.2011.09.005
- Masedo, A. I., & Esteve, M. (2007). Effects of suppression, acceptance and spontaneous coping on pain tolerance, pain intensity and distress. *Behaviour Research and Therapy, 45*(2), 199-209. doi:10.1016/j.brat.2006.02.006
- McEwen, B. S. (1998). Protective and damaging effects of stress mediators. *New England Journal of Medicine, 338*, 171-179.
- McHugh, R., Hearon, B. A., Halperin, D. M., & Otto, M. W. (2011). A novel method for assessing distress intolerance: Adaptation of a measure of willingness to pay. *Journal of Behavior Therapy and Experimental Psychiatry, 42*(4), 440-446.  
doi:10.1016/j.jbtep.2011.04.003
- McKinney, C., Donnelly, R., & Renk, K. (2008). Perceived parenting, negative perceptions of parents, and late adolescent emotional adjustment. *Child and Adolescent Emotional Health, 13*, 66-73.
- McLain, D. L. (1993). The MSTAT-I: A new measure of an individual's tolerance for ambiguity. *Educational and Psychological Measurement, 53*(1), 183-189.  
doi:10.1177/0013164493053001020
- McLaughlin, K. A., Hatzenbuehler, M. L., Mennin, D. S., & Nolen-Hoeksema, S. (2011). Emotion dysregulation and adolescent psychopathology: A prospective study. *Behaviour Research and Therapy, 49*(9), 544-554. doi:10.1016/j.brat.2011.06.003



- Mennin, D. & Farach, F. (2007). Emotion and evolving treatments for adult psychopathology. *Clinical Psychology: Science and Practice*, 14(4), 329-352. doi:10.1111/j.1468-2850.2007.00094.x
- Mennin, D. S., Holoway, R. M., Fresco, D. M., Moore, M. T., & Heimberg, R. G. (2007). Delineating components of emotion and its dysregulation in anxiety and mood psychopathology. *Behavior Therapy*, 38, 284-302.
- Miller, A. L., Rathus, J. H., & Linehan, M. M. (2007). *Dialectical behavior therapy with suicidal adolescents*. New York, NY, US: Guilford Press.
- Monroig, M. & Bedwell, J. (2012). Associations between positive health behaviors and psychological distress. *The University of Central Florida Undergraduate Research Journal*, 6, 10-17.
- Morey, L.C. (2007). *The Personality Assessment Inventory Professional Manual*. Lutz, FL: Psychological Assessment Resources.
- Myers, S. A., Bogdan, L. M., Eidsness, M. A., Johnson, A. N., Schoo, M. E., Smith, N. A., & ... Zackery, B. A. (2009). Taking a trait approach to understanding college students' perceptions of group work. *College Student Journal*, 43(3), 822-831.
- Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science*, 3(5), 400-424. doi:10.1111/j.1745-6924.2008.00088.x
- Neudecker, J. J., & Skeel, R. L. (2009). Development of a novel malingering detection method involving multiple detection strategies. *Archives of Clinical Neuropsychology*, 24(1), 59-70. doi:10.1093/arclin/acp008

- Ochsner, K. N., & Barrett, L. (2001). A multiprocess perspective on the neuroscience of emotion. In T. J. Mayne & G. A. Bonanno (Eds.), *Emotions: Current issues and future directions* (pp. 38-81). New York, NY: Guilford Press.
- Ochsner, K. N., & Gross, J. J. (2007). The neural architecture of emotion regulation. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 87-109). New York, NY: Guilford Press.
- Phelps, E. A. (2006) Emotion and cognition: Insights from studies of the human amygdala. *Annual Review of Psychology, 24(57), 27-53.*
- Philippot, P., Baeyens, C., & Douilliez, C. (2006). Specifying emotional information: Regulation of emotional intensity via executive processes. *Emotion, 6(4), 560-571.*  
doi:10.1037/1528-3542.6.4.560
- Rathus, J. H., & Miller, A. L. (2002). Dialectical Behavior Therapy adapted for suicidal adolescents. *Suicide and Life-Threatening Behavior, 32(2), 146-157.*  
doi:10.1521/suli.32.2.146.24399
- Robinson, L. R., Morris, A. S., Heller, S. S., Scheeringa, M. S., Boris, N. W., & Smyke, A. T. (2009). Relations between emotion regulation, parenting, and psychopathology in young maltreated children in out of home care. *Journal of Child and Family Studies, 18(4), 421-434.* doi:10.1007/s10826-008-9246-6
- Ruffolo, L. F., Guilmette, T. J., & Willis, W. G. (2000). Comparison of time and error rates on the Trail Making Test among patients with head injuries, experimental malingerers, patients with suspect effort on testing, and normal controls. *The Clinical Neuropsychologist, 14(2), 223-230.* doi:10.1076/1385-4046(200005)14:2;1-Z;FT223

- Salsman, N. L., & Linehan, M. M. (2012). An investigation of the relationships among negative affect, difficulties in emotion regulation, and features of borderline personality disorder. *Journal of Psychopathology and Behavioral Assessment, 34*(2), 260-267.
- Schmidt, N. B., Richey, J. A., & Fitzpatrick, K. K. (2006). Discomfort intolerance: Development of a construct and measure relevant to panic disorder. *Journal of Anxiety Disorders, 20*, 263-280. doi:10.1016/j.janxdis.2005.02.002
- Schriesheim, C. A., & Hill, K. D. (1981). Controlling acquiescence response bias by item reversals: The effect on questionnaire validity. *Educational and Psychological Measurement, 41*(4), 1101-1114.
- Shipman, K., Zeman, J., Fitzgerald, M., & Swisher, L. M. (2003). Regulating emotion in parent-child and peer relationships: A comparison of sexually maltreated and nonmaltreated girls. *Child Maltreatment, 8*(3), 163-172. doi:10.1177/1077559503254144
- Simons, J., & Gaher, R. (2005). The Distress Tolerance Scale: Development and validation of a self-report measure. *Motivation and Emotion, 29*, 83-102. doi:10.1007/s11031-005-79553
- Slee, N., Arensman, E., Garnefski, N., & Spinhoven, P. (2007). Cognitive-behavioral therapy for deliberate self-harm. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 28*(4), 175-182. doi:10.1027/0227-5910.28.4.175
- Slee, N., Garnefski, N., Spinhoven, P., & Arensman, E. (2008). The influence of cognitive emotion regulation strategies and depression severity on deliberate self-harm. *Suicide and Life-Threatening Behavior, 38*(3), 274-286. doi:10.1521/suli.2008.38.3.274

- Slee, N., Spinhoven, P., Garnefski, N., & Arensman, E. (2008). Emotion regulation as mediator of treatment outcome in therapy for deliberate self-harm. *Clinical Psychology and Psychotherapy, 15*(4), 205-216. doi:10.1002/cpp.577
- Standage, H., Ashwin, C., & Fox, E. (2010). Is manipulation of mood a critical component of cognitive bias modification procedures?. *Behaviour Research And Therapy, 48*(1), 4-10. doi:10.1016/j.brat.2009.08.005
- Stanković, S., & Vukosavljević-Gvozden, T. (2011). The relationship of a measure of frustration intolerance with emotional dysfunction in a student sample. *Journal of Rational-Emotive and Cognitive Behavior Therapy, 29*(1), 17-34. doi:10.1007/s10942-011-0128-2
- Suveg, C., & Zeman, J. (2004). Emotion regulation in children with anxiety disorders. *Journal of Clinical Child and Adolescent Psychology, 33*(4), 750-759. doi:10.1207/s15374424jccp3304\_10
- Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. *Monographs of the Society for Research in Child Development, 59*(2-3), 25-52, 250-283. doi:10.2307/1166137
- Vasilev, C. A., Crowell, S. E., Beauchaine, T. P., Mead, H. K., & Gatzke-Kopp, L. M. (2009). Correspondence between physiological and self-report measures of emotion dysregulation: A longitudinal investigation of youth with and without psychopathology. *Journal of Child Psychology and Psychiatry, 50*(11), 1357-1364. doi:10.1111/j.1469-7610.2009.02172.x

- Weitzman, M. L., McHugh, R., & Otto, M. W. (2011). The association between affect amplification and urgency. *Depression and Anxiety*, 28(12), 1105-1110.  
doi:10.1002/da.20830
- Westermann, S., & Lincoln, T. M. (2011). Emotion regulation difficulties are relevant to persecutory ideation. *Psychology and Psychotherapy: Theory, Research and Practice*, 84(3), 273-287.
- Windle, M., & Lerner, R. M. (1986). Reassessing the dimensions of temperamental individuality across the life span: The Revised Dimensions of Temperament Survey (DOTS-R). *Journal of Adolescent Research*, 1(2), 213-229. doi:10.1177/074355488612007
- Wray, T. B., Simons, J. S., Dvorak, R. D., & Gaher, R. M. (2012). Trait-based affective processes in alcohol-involved “risk behaviors”. *Addictive Behaviors*, 37(11), 1230-1239.  
doi:10.1016/j.addbeh.2012.06.004
- Yap, M. H., Allen, N. B., & Sheeber, L. (2007). Using an emotion regulation framework to understand the role of temperament and family processes in risk for adolescent depressive disorders. *Clinical Child and Family Psychology Review*, 10(2), 180-196.  
doi:10.1007/s10567-
- Zvolensky, M. J., Bernstein, A., & Vujanovic, A. A. (2011). *Distress tolerance: Theory, research, and clinical applications* New York, NY: Guilford Press.
- Zvolensky, M. J., & Otto, M. W. (2007). Affective intolerance, sensitivity, and processing: Advances in clinical science introduction. *Behavior Therapy*, 38, 228-233. doi: 10.1016/j.beth.2007.01.002

Zvolensky, M. J., Vujanovic, A. A., Bernstein, A., & Leyro, T. (2010). Distress tolerance: Theory, measurement, and relations to psychopathology. *Current Directions in Psychological Science*, *19*(6), 406-410. doi:10.1177/0963721410388642